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# SECONDARY EDUCATION COMMITTEE OF THE COUNTY OF STIRLING.

## FIRST REPORT ON MEDICAL INSPECTION OF SCHOOL CHILDREN.

1910-11.

24 GEORGE SQUARE,  
GLASGOW, 12th December, 1911.

### INTRODUCTORY.

CONSIDERATION of a scheme of Medical Inspection of School Children in Stirlingshire under the Education (Scotland) Act, 1908, was begun by the County Secondary Education Committee in 1909, and on 5th June of that year I submitted, in compliance with the request of the Committee, a preliminary report on the subject. After deliberation as to many details, a scheme on the lines recommended was adopted by the Committee and approved by the Scotch Education Department. It was a very satisfactory feature of the proceedings that all the School Boards in the county, burghal and landward, agreed to have their medical inspection work conducted by the County Committee.

The total number of elementary school children in the county was, in round figures, 30,000. The ages at which it was agreed that medical inspection should take place were five, seven, ten, and 13 years, ages five and 13 being taken first. For this work three medical inspectors were appointed, two being on whole-time duty, and the other, Dr. Prangnell, medical officer of health of the Burgh of Falkirk, being on part time his work relating wholly to the Falkirk Burgh schools. Dr. Prangnell is not in private practice.

It was agreed that applications for the whole-time appointment should be open only to candidates with a qualification in public health, that one of the posts should be filled by a

lady, and that the salaries for the whole-time officers be £300 each, and for Dr. Prangnell £150, travelling expenses and necessary outlays being also allowed. The Committee were fortunate in the appointment of Dr. Grahame H. Skinner and Dr. A. Josephine Gardner to the whole-time inspectorships. In allocating their districts of work, the county area is so scattered that it was found impracticable to fix ordinary geographical limits, and that the best arrangement would depend on travelling facilities from Stirling, which was to be Dr. Gardner's centre, and from Glasgow, where Dr. Skinner was instructed to reside. In this way the schools allocated to each were as follow:—

(1) DR. SKINNER.

*Western Stirlingshire.*

Parish.	Schools.
Buchanan, - -	Buchanan, Salloch, and Inversnaid.
Drymen, - -	Drymen, Auchentroig, and Finnich Combination.
Balfron, - -	Balfron.
Killlearn, - -	Killlearn.
Baldernock - -	Baldernock.
Campsie, - -	Craighead, Lennoxton, Torrance, Campsie Glen, and St. Machans.
Strathblane, -	Strathblane.

*Central Stirlingshire.*

Kilsyth, - -	Kilsyth Burgh Academy and Chapel Green School.
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*Eastern Stirlingshire.*

Falkirk, - -	Bonnybridge and Greenhill.
Falkirk, - -	Laurieston and Auchengear.
Slamannan, -	Slamannan, Rosemount, Limerigg, Barnsmuir, and Avonbridge.
Muiravonside, -	Muiravonside, Maddiston Infant, Drumbowie, and Blackbraes.
Grangemouth, -	Zetland, Dundas, Sacred Heart, Infant, Grange, and High.
Grangemouth, -	Shieldhill, Wallacestone, Redding Infant, Redding, Polmont, and Bothkennar.
Airth, - - -	Airth, South Alloa, and Dunmore Episcopal.

## (2) DR. GARDNER.

*Central Stirlingshire.*

Denny,	-	-	Denny, Lawhill, Longcroft, Dennyloanhead, and Denny Roman Catholic.
Dunipace,	-	-	Dunipace and Torwood.
Gargunnoch,	-	-	Gargunnoch.
Kilsyth,	-	-	Banknock, Banton, and Kilsyth Roman Catholic.
Kippen,	-	-	Arnprior, Buchlyvie, and Kippen.
Logie,	-	-	Bridge of Allan and Causewayhead.
St. Ninians,	-	-	Bannockburn, Cambusbarron, Cowie, East Plean, Fallin, Milton, Muirland, West Plean, St. Mary's Roman Catholic, and Sauchie.
Stirling,	-	-	Abbey, Allan's, Craig's, High, St. Ninians, Territorial, Episcopal, St. Mary's Roman Catholic, and Stirling Junior High.

*Eastern Stirlingshire.*

Larbert,	-	-	Carron, Carronshore, Larbert Central, and Larbert Village.
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## (3) DR. PRANGNELL.

Falkirk Burgh Schools—High, Comely Park Central, St. Francis' Roman Catholic, Bainsford, Camelon, Carmuir, Northern, Victoria, and Junior High.

The average number of children on the school registers in Dr. Skinner's areas in 1909-10 was 11,091; in Dr. Gardner's, 12,318; and in Dr. Prangnell's 6491—a total of 29,900. Dr. Skinner's schools are, on the whole, more scattered and less easy of access than the rest.

*School Nurses.*—Consideration was given to the question of appointing school nurses. The practice varies throughout the country. In some places a nurse accompanies each medical inspector to aid in the undressing and dressing of children, weighing and measuring, filling up record cards, and so forth. In others this work is undertaken by co-operation between the medical inspectors and the school staff, the head teacher or assistant teacher, or janitor, or otherwise. Before the inauguration of the scheme I had the advantage of meeting with the Stirlingshire Branch of the Educational Institute of Scotland, and of explaining the lines along which the inspectors could attempt to carry out their duties if assistance were given by

the teachers. This was the course adopted, and it is very gratifying to be able to say that it has been successful. The teachers have most kindly given their aid, at the same time that the medical inspectors have endeavoured to suit their arrangements to the different conditions of different schools, and the cost to the rates of two whole-time nurses, with travelling expenses, has been saved.

*Outdoor Nursing Arrangements.*—There is, however, another field of work for nurses in connection with School Medical Inspection. Unless a scheme is to be largely confined to the compilation of statistics, it is essential that there should be systematic “following up” of children discovered to be defective, whether bodily or mentally, whether in respect of dirt or of disease. Having this in view, the Education Committee called a meeting of representatives of all the District Nursing Associations in the county, and discussed with them the practicability of getting aid from their nurses in return for contribution to salaries corresponding to the time involved in the work. In certain parts of the county, however, there were no district nurses, in some other parts nurses were already fully occupied, whilst in others it was stated that the services required could be given. The school population of the areas which could be provided for by district nurses was about 10,000 of the total 30,000 in the county. In these circumstances, it was determined to accept the services of the district nurses so far as available, and to appoint a whole-time nurse for the areas occupied by the other 20,000 children. A salary of £75 (including allowance for uniform), with travelling outlays, was offered, and from amongst a number of very suitable candidates Nurse Helen D. Gibson was appointed. She resides in Stirling, and does a considerable part of her work by cycling. In a short time it was found that one or two of the district nurses could not conveniently overtake the additional duties, and their areas, which were not very large, are now also dealt with by Nurse Gibson. The district nurses who give aid in the work are the following:—

Nurse Molloy, Stirling.  
 Nurse Steele, Bridge of Allan.  
 Nurse Henderson, Kilsyth.  
 Nurse Hempseed, Lennoxtown.  
 Nurse Vaughan, Drumbowie.

The arrangements in respect both of Nurse Gibson and of the district nurses have wrought very satisfactorily, and the contributions to the Nursing Associations in respect of work done by the district nurses have corresponded very closely to the cost of the whole-time nurse for an equivalent amount of work.

*Work Done by Nurses.*—To complete what has to be said regarding the nursing arrangements, an indication may be given here of the amount of work done by them. Nurse Gibson began duty on 22nd November, 1910, so that her first year's work does not correspond with that of the medical inspectors. In the course of her year she made 2855 visits to parents and guardians. The number of children dealt with was 1457. The number of defects dealt with was 1490, and these were made up as follows:—Dirt and vermin, 543; defective eyesight, 555; diseases of throat, nose, and ears, 236; disease of mouth, 35; other diseases, 121. Limiting the figures to the period from the date of her appointment up to 31st July, 1911, the total visits paid were 2205, and the total children dealt with were 1150. Of these, 436 were dirty and verminous, 446 had defective eyesight, 166 had defective conditions of throat, nose, and ears, and the balance is made up of various defects. Nurse Gibson reports that she has been generally well received by parents or guardians.

Nurse Molloy, whose work is confined to Stirling Burgh, had made 508 visits up to the end of the school year. 206 of these were for verminous conditions, 168 for eye defects, 134 for other conditions, including cases of infectious skin disease, enlarged tonsils, weak heart, and spinal curvature. Her visits were begun in September, 1910, and the average up to the end of June was about 60 per month.

Nurse Steele, Bridge of Allan, made visits in connection with the schools at Bridge of Allan and Causewayhead. Her total visits were 32, made up of seven for verminous conditions, 15 for eye defects, and ten for other diseases.

Nurse Henderson, Kilsyth, made 335 visits regarding 88 cases. Of the 88 cases, 25 were verminous.

Nurse Hempseed, Lennoxton, made 187 visits on 47 cases, of which four were verminous.

Nurse Vaughan, Drumbowie, made 89 visits on 34 cases, of which three were verminous.

I prepared register sheets for the nurses, on which they enter all their visits, together with a note of the results. The register sheets are sent to me fortnightly, and then passed on to the respective medical inspectors. There are two sets of sheets in use, one for defects not requiring medical attention—verminous conditions, insufficient or ragged clothing, &c.—and the other set for all other cases visited by the nurses.

*Scheme of Medical Inspection.*—In organising the scheme of inspection, advantage was taken of the experience of some counties in England, school medical inspection having been established there by statute in 1907. The numerous forms, records, and registers in use in various places were studied,



and whatever seemed best was selected. The following is a brief detail of the general procedure:—

The medical inspector sends intimation to the head teacher of his intention to visit a school at a specified day and hour. A warm and well-lighted and quiet room is, if possible, to be set aside for the inspection. A basin with water and towel are to be at hand. In his intimation the inspector states the number of children whom he can examine, and encloses forms for the teacher to send to parents by the hand of the children. These forms invite the parents to be present at the inspection if they so desire, and they include a series of questions to be answered by the parents regarding the health history of the child. The information so obtained is commonly entered by the teacher on one side of the scholar's record card, cards for boys and girls being distinguished by their colour. On the other side the inspector, whilst still in the school, enters the results of his examination of the child. The entries are much simplified by a system of abbreviations previously agreed on, so that the work is minimised. These cards are used for "routine cases," that is, for children coming up for examination at the ages agreed on for medical inspection, namely, five, seven, ten, and 13. "Non-routine cases" are in a different position. They are children who, in the opinion of the teacher, require medical inspection owing to observed or suspected defects, independently of their age. The results of such examination are entered on separate cards. At the first inspections at all the schools a beginning was made with the non-routine cases.

The filled up record cards are sent to my office here, where their contents are copied into summary sheets by a clerk appointed for the purpose. The cards are then returned to the school and kept locked in a small metal cabinet designed for the purpose. The cabinet contains a series of guide cards for the several ages of examination, and the record cards, being placed behind the appropriate guide card, come automatically before the inspector when the next age for examination is reached, and so on during school life.

For special reports on any matters requiring particular attention at the schools visited a separate form is in use.

The medical inspectors send me weekly a plan of their engagements. Intimation is likewise sent to H.M. Inspector and the School Board clerk. On another form the inspectors and the whole-time nurse enter their monthly outlays, which statements, after being checked, are sent by me to the Treasurer of the Education Committee.

*Procedure as to Defects.*—When a child is found by the medical inspector to be defective in any respect requiring

medical treatment, intimation is sent to the parent or guardian advising him to call in his doctor. The condition is also intimated to the teacher, and a note of the case is retained by the inspector. The three forms in use have been so designed that a single writing, with the use of a carbon transfer, suffices. Along with the intimation, the parents receive a reply post-card enclosed in an envelope, which they are asked to hand to their medical attendant. The medical attendant is requested to be good enough to return the prepaid reply half of the post-card to the medical inspector, so that the latter will know that the parent has gone to his doctor with the child. In this way a considerable degree of co-operation on the part of the medical profession has been obtained. Where the ascertained defect consists of obstructed breathing, ear disease, or defective teeth, the parent, in addition to the above intimation, receives a printed card calling special attention to the importance of immediate treatment. Another card relating to the care of the teeth may be distributed generally where need for it is indicated in a school.

*Uncleanliness.*—Certain defects do not require medical attention. These consist mainly of verminous or dirty conditions of the head or body or clothing. In the case of verminous heads, a card is sent to the parents giving directions for treatment, and, if the directions are neglected, a second warning is sent. Where notice of such defects is altogether disregarded by the parents, the School Board is informed, and the relative provisions of the Education (Scotland) Act and the Children Act come into operation.

*Health Conditions of Schools.*—In addition to the medical examination of the children and any inquiries as to acute infectious disease, the medical inspectors note the general health conditions of each school, in respect especially of ventilation and cleanliness. The state of the atmosphere is roughly tested by means of an apparatus for the measurement of carbonic acid gas. Note is made of the method of school dusting, whether wet or dry, the frequency of floor washing and cleansing of woodwork and the like. Attention is also given to lighting, and to the state of the cloak rooms, latrines, and playgrounds, the presence or absence of door mats and scraper, and other such details.

*Work Done.*—The medical inspectors began their work on 15th May, 1909, and the period covered in the present report extends from that date to 31st July, 1911, that being the end of the year for which the Education Department requires reports.

After a preliminary visit had been paid by the inspectors to all the schools on their respective lists for the purpose of becom-

ing acquainted with the headmasters and explaining the arrangements, work was begun by examination of non-routine cases. The number of non-routine cases found defective in some respect was 2062. The number of routine cases examined was 10,785.

A good deal of thought has been given to the question of the best method of tabulation in this Report of the ascertained facts. It seemed important for future reference, and for possible summation and discussion after any given number of years, to make the whole facts fairly accessible. At first it was proposed to do this by printing as an appendix to the Report full separate tables for the two sexes at each age of examination in each of the inspectors' districts, with further distinction of the areas belonging to each School Board. It soon appeared, however, that the tabular matter under this scheme would be so great in amount, and would take so long to print, as to make the report too bulky for convenience, and, at the same time, very greatly to delay its issue. That being so, we ultimately decided to condense the tabulations, so that, instead of a total of 23 folding tables, only two are submitted at the end of the report. For the rest, the fuller figures relating to each School Board area have been preserved in manuscript at the office here, and will be available if required by any of the School Boards.

The main statistical interest will be found in the smaller tables scattered through the text of the inspectors' reports, together with their comments on the figures.

I crave the attention of all the School Boards to the mass of important facts and considerations set forth in the reports of the three inspectors. They will well repay study, and they raise important questions as to treatment which will require serious consideration by the Boards. I desire also to direct attention to the observations on the sanitary conditions of the schools in respect of light, ventilation, cleanliness, cloak room and lavatory accommodation, playgrounds, and so forth. With regard to these matters mention of individual schools has been avoided in the hope that each Board will attend to its own.

(Sgd.) JOHN C. M'VAIL.



## ANNUAL REPORT BY DR. A. JOSEPHINE GARDNER.

In this, the first Annual Report on the Medical Inspection of Schools, the figures include inspections made from June, 1910, to 31st July, 1911.

A few inspections were made in June, 1910, but inspection proper commenced in August, 1910. At the first inspection all children aged five and aged 13 were examined, also any other children brought forward by the head teacher as requiring medical attention, regarding some physical or mental defect, verminous conditions, malnutrition, or parental neglect. In five or six months' time the schools were again visited, and all children aged seven (and in Stirling Burgh also those aged ten) were examined, and any non-routine cases brought forward by the head teacher, parents, or attendance officer. At this time a good many children were inspected at the request of the attendance officers as to their fitness or otherwise for school attendance.

During the actual inspections it was generally possible to have the services of a teacher, which is a great benefit, as usually the teacher has a knowledge of the child's home and environment. In those schools where it was impossible to have the services of a teacher, a senior girl was present to help with the clerking or dressing and undressing the children. Those over seven can generally help themselves, and in the summer months a great deal of time is saved by the prevailing fashion of going barefooted, as there are no boots to be fastened or unfastened for the purpose of weighing the child.

The parents are invited to be present at the examination, date and time of inspection being stated on the notice they receive from the head teacher, but very few parents avail themselves of this opportunity, a total of 332 out of a possible 5588 being present. Whether it is through carelessness on the parents' part, or distance from school, or whether they think expense will be incurred for treatment is uncertain, but the fact remains that a very meagre number of parents present themselves; those that do come are generally the mothers of timid or delicate children, or those who have already had advice about a known defect and wish to know if anything

more can be done to remedy it. If during examination a serious defect is found, such as valvular disease of the heart, that cannot be very well explained by a printed card, and where the parents live within reasonable distance of school, I generally send for the mother and explain matters to her, and, if possible, try to convince her of the existence of the defect and the serious danger to the child of over-exertion or failure on her part to obtain medical advice. If I cannot talk personally to the mother, I explain matters to the school nurse, who goes to the house and informs the parents of the abnormality.

In cases where adenoids, defective sight or hearing is revealed, and the parent is not present at the examination, a printed notice is sent to the father, stating the nature of the defect and asking him to get the child put under proper medical treatment at once.

When we look at the Amelioration Table we shall see how many comply with this request.

### SCHOOL PREMISES.

On the first visit to every school a survey of the premises, conveniences, playgrounds, &c., was made. The wet method of sweeping was used in the great majority of schools, usually wet sawdust, sometimes impregnated with a disinfectant solution.

The type of closets was varied, *i.e.*, pail closets, trough closets, dry closets, automatic self-flushing closets, and individual hand-pull wash-down closets, and, as a rule, the cleanliness was quite satisfactory. The ventilation and lighting in some of the older buildings leave much to be desired. In some lofty rooms the inlets for fresh air are so elevated that it never seems to percolate down to the level of the children's heads. Others have large windows, only a small portion of which is made to open.

In winter weather it appears to be very difficult to have proper ventilation along with a sufficient warmth in the room. Temperatures varying from 42 degrees to 70 degrees were recorded.

Cloakrooms were also inspected. Here again the older type of schools fell short of necessary cloakroom accommodation. Frequently the outer passage did double duty as lobby and cloakroom, and the rows of pegs were in such close proximity to each other that a verminous coat or hat could easily infect all the clothing in its neighbourhood. In these there is no heating apparatus, and when school dismisses the children have to wear their damp coats.

In one school this was remedied by means of a fireplace, and a "pulley" hung from the ceiling.

## NUMBER OF VISITS TO SCHOOLS AND DEPARTMENTS.

At the commencement of medical inspection an introductory visit was paid to each school in this district. Every school has been visited twice for routine inspection, and many other visits were made for the purpose of ascertaining what had been done to comply with the notices sent, to re-examine verminous cases, to inquire into outbreaks of mumps, measles, whooping-cough, and infectious skin and eye diseases.

The principle on which children have been selected for inspection is—

1. Those aged five who are entrants to school.
2. Those aged 13 who are leavers from school.
3. Special cases at other ages presented by the teacher, parent, or attendance officer, or picked out by the doctor after the routine inspection is over, *i.e.*, non-routines.
4. Those aged seven.
5. Those aged ten (in Burgh of Stirling only).

The examination of the five-year-old group does not include examination of vision, unless an obvious defect such as squint exists, nor hearing, unless the defect is marked, as at this age the child is too young to understand the test.

The examination of the 13-year-old group does not give such good practical results as those of seven and ten, because at 13 the child is usually going to leave school, and the parents often think that sufficient excuse for not remedying any defect found, besides, from the teacher's point of view, the child is almost finished with school life, and has had to struggle through all the standards with the defect unremedied.

But at seven years old it is usually possible to detect any commencing ailment, such as spinal curvature, slightly defective vision or hearing; and parents think if a child has not "grown out of" enlarged tonsils, bronchitis, running ears, by the age of seven, it is time they saw to the defect. At seven the child is out of the infant room and has begun the struggle of school life. The hours are longer, the lessons harder, and competition keener, and, in addition to this, home lessons are now given.

The time required for examination varies with the amount of help given beforehand and at time of inspection, and the number of defects found. Most of the head teachers had the information received from parents written into the Record Card, and some had in addition, the attendance, condition of clothing, weight, and height all filled in.

This is a great help, and in many country schools means the saving of another half day's visit.

The time occupied in examination varies from four to ten minutes; usually about seven minutes are required.

The head teachers have been most kind and helpful, and cordially tried to do all in their power to make the medical inspection a success. I wish to take this opportunity of thanking them for their willing assistance.

#### NUMBER EXAMINED.

Infant girls, aged	5	-	-	-	590	
Infant boys, „	5	-	-	-	525	
Junior girls, „	7	-	-	-	724	
Junior boys, „	7	-	-	-	750	
Junior girls, „	10	-	-	-	218	(Stirling Burgh)
Junior boys, „	10	-	-	-	214	„
Senior girls, „	13	-	-	-	657	
Senior boys, „	13	-	-	-	692	
Non-routine, all ages, -		-	-	-	1218	
Total, - - - -					5588	

*Clothing.*—As regards clothing, comparatively few were found with insufficient clothing; 227 were only fairly well clad and 21 very scantily clad, whilst, on the other hand, 4122 had sufficient or more than sufficient clothing. The range of what the mothers deemed sufficient clothing was a wide one. Many a child was sweltering under four or five heavy woollen garments on a hot summer day, whilst another child had only on a muslin pinafore next her body and a ragged cotton frock to complete her outfit on a bitter winter morning. Of course, it must not be forgotten that the mothers had due warning of the examination, and not a few children had new outfits, even to braces, caps, and boots. In some cases two days previous to the dreaded day the child was absent, because he or she remained in bed to have his or her one set of underclothes washed. One small boy came to school in rags and minus a shirt in the forenoon, but at 2 p.m., the hour of examination, returned to school resplendent in his Sunday suit and newly-washed shirt. The scantily-clad children were miserable-looking objects, with clothing many sizes too big for them. There were two boys with no shirts at all, nothing but a vest, jacket, and trousers on, and as for braces, anything seems to do, from a bootlace to a piece of oilcloth. It is no wonder some of them suffer from spinal curvature. They have to sit hunched up anyhow in order that their shoulders may not be cut with the strings, &c., with which they fasten their garments. Even well-clad children had most of their under-garments

pinned on; many had them sewn on, especially at throat and wrist, and one small girl had her blouse fixed with nails. 338 had ragged garments, and 46 were very ragged. The cleanliness of the clothing of 365 children left much to be desired, whilst 41 were absolutely filthy and foul-smelling.

*Footgear.*—Footgear was a varying quantity. In summer months, practically all the children in several schools were barefooted, and in three cases I was told the children never had boots, winter or summer; 37 had wretched boots, and 211 were only fairly good. The consequence of running barefooted was, that a great many children suffered from septic sores on the feet; they seem not to mind any cuts, and let them turn to festering sores for want of a clean rag to cover them. Many suffer from broken chilblains.

*Previous Medical History.*—Practically more than half the children have had measles before they come to school; this especially holds good in urban districts. Of non-infectious diseases, affections of the lungs and bronchial tubes are most common, 180 having had pneumonia and 115 bronchitis. On inquiry it is generally found that lung trouble has supervened after measles, and yet parents persist in thinking measles a necessary and unavoidable evil of childhood, and seem to take little or no care to avoid the infection. Only 30 stated that consumption was in the family. In not a few cases where it was known that father or mother had succumbed to the disease this column was answered in the negative.

*Work Before or After School Hours.*—219 children worked either before or after school hours, or both before and after, mostly as milk-carriers or newspaper deliverers. These children were almost all 13 years old, although two aged seven and a few aged ten worked out of school hours.

*Nutrition.*—Of the 5588 children examined those only fairly well nourished number 613. This means that they were below standard in weight and height. Their muscles were flabby, their skin was pale, and they looked unhealthy.

Good nutrition means the maintenance of function in all the organs. The amount of nutriment taken in must balance the amount of waste thrown out, but in a child there is the extra nutriment required for growth of all the organs and the skeleton of the body. There is a great difference between occasional want of food and semi-starvation for years. A child badly or insufficiently fed for years becomes pale, stunted, and anæmic, and, whatever good feeding he may get afterwards, he will never attain the normal weight and height; whereas a child, usually well and judiciously fed, may go on half rations for a few weeks, if the father is out of work for that time, without being permanently injured.



The number of badly-nourished children (including non-routines) is estimated at 69, but this is rather under than over the mark.

There are great differences at different schools. One village may have a much higher average weight than the neighbouring village, although both are mining villages and are on an equality regarding wages and housing. A great deal is the result of the mothers' habits; in a village where they are a "reckless" lot, always gossiping at the doors and leaving the house and children to take care of themselves, or where mothers are idle and drunken too, there is not much chance of their children being tabulated as of good nutrition. They get a "piece" for breakfast, another for dinner, and perhaps boiled potatoes and kippers for tea when the father comes home. At the week-end they have a great amount of food in the house, and often small children will be getting steak and eggs for breakfast; but during the rest of the week they subsist on bread, tinned salmon and sardines, and tea; porridge as an article of diet is conspicuous by its absence.

## TABLE OF HEIGHTS AND WEIGHTS.

AVERAGE IN COUNTY COMPARED WITH  
ANTHROPOMETRIC STANDARDS.

<i>Height in Inches.</i>					
		Age 5	Age 7	Age 10	Age 13
Boys	Stirlingshire, -	41.1	45.8	50.8	55.9
	Standard, -	41.0	46.0	51.8	56.9
Girls	Stirlingshire, -	41.4	43.4	54.8	56.7
	Standard, -	40.8	44.5	51.1	57.8
<i>Weight in Lbs.</i>					
Boys	Stirlingshire, -	41.8	46.3	62.0	77.1
	Standard, -	39.9	49.7	67.5	82.6
Girls	Stirlingshire, -	40.2	45.6	60.8	81.3
	Standard, -	39.6	46.7	62.0	87.0

A glance at the weight and height table shows that Stirling County is below the average, both for weight and height at all ages except the five-year-old boys and girls, who are slightly above the average both in weight and height. Ten-year-old girls in Stirling Burgh are 3 inches above the average in height, but the boys (also in Stirling Burgh) at this age are below normal, 5 lbs. in weight and 1 inch in height.

It is not a very pleasant state of affairs to think that so many children are below average weight and height. I have weighed five-year-olds varying from 29 lbs. to 66 lbs., and 13-year-old girls varying from 50 lbs. to 136 lbs., but the fact that her neighbour is about 56 lbs. above the normal doesn't compensate the unfortunate 13-year-old child who only weighs 50 lbs. Several families in the various schools were given to me to examine because they were suspected to be underfed. The state of one family was appalling; the children weighed about half what they should have weighed. Nurse went to the house and found that the mother was dead and the father had deserted them, and they were left to the tender mercies of a step-grandmother and neighbours. In six months' time their weight had decreased half a pound instead of increasing six or seven lbs., as the weight of some other children had done.

The mother of one family, where the feeding was more injudicious than scanty, was instructed as to nourishing diet, and after five months of sensible feeding the children were reweighed, and they had gained several pounds.

### CLEANLINESS OF HEAD AND BODY.

The standard of cleanliness in most schools is not high, and in making up the statistics I have tried to be as lenient as possible, but, as Burns has it, "Facts are chiefs that winna ding."

*Head.*—Unfortunately we have to tabulate 876 children with only fairly clean scalps, 166 having scalps that appear as if they had never been washed at all; they varied in colour from mouse-grey to coal black. 847 children had nits in the hair, and only 40 of these were boys. We may say that 807 out of 2268 girls had nits in the hair. Nits are the eggs of the louse, and are attached to the hair by a sticky substance, so that they require loosening by paraffin before they can be washed off. One female louse lives two months and lays 5000 eggs; these are the nits found in the hair. Amongst the senior girls the practice of plaiting the hair is a most commendable one. It has come into fashion since the cookery classes started, as every girl attending those classes must have her hair plaited or tied back. Actual vermin were found on 57 children, and 18 had sores on the scalp. These sores are caused by the irritation

of the nits and vermin; the child scratches and breaks the skin, and very soon we find a septic sore. Mothers have the idea that the glands enlarging down the back of the neck cause the sores, and not *vice versa*, that the sores, vermin, and nits cause the glands to enlarge. Curiously enough, I did not find many with cervical glands enlarged.

*Body.*—Going on to cleanliness of the body, here again 811 children had only fairly clean skins. Boys and girls seem about equal here, although I think the senior boys are cleaner on the body, although not on the hands, than girls. This may be accounted for by the limited washing accommodation their homes furnish; boys think nothing of stripping to the waist and washing in the back yard, whereas girls content themselves with scrupulous cleanliness of hands, face, and neck, &c. Most of the children had been washed the night before the examination, but the mothers had forgotten the tell-tale “tide-marks,” and the dirty armpits and upper arm, in some cases nearly black; children who had clean necks and chests might have coal-black crevices in the ears, armpits, &c. Those were put down as fairly clean, whilst the 67 tabulated as dirty had made no attempt at washing at all. 102 were flea-bitten, having not only one or two marks, but being absolutely covered with flea bites, so much so that several pupils were shown to me by teachers as having a “rash on the neck.” Card A is issued to verminous children. Vermin were found on the body or clothes of 88 children, mostly of five and seven years old. Card G is sent to parents whose children’s clothing or body is found verminous. This card has only been in use about eight months.

*Teeth.*—4370 children, examined at the different ages, showed that as regards cleanliness of the teeth 2047 were clean, 1711 fairly clean, and 612 dirty. A very few used a tooth brush, and I did my best to stimulate those who had good teeth to promise to clean them daily in order to keep them from decay.

1046 children, or 23·8 per cent., had good teeth. In some schools this percentage is much higher, whilst in others the percentage of good teeth falls to three or four. At the age of five the first teeth are beginning to fall out, and at seven most children show signs of the second dentition, *i.e.*, eruption of the permanent teeth. If conservative dentistry could be practised at this age a great saving of good teeth would result. Some children had most irregular teeth, especially those with any deformity of the palate. If the palate arch is too high the front of the jaw tends to become so narrow that the teeth are crowded in, overlapping each other, and sometimes erupting in the palate itself. When the teeth are overcrowded there are a great many nooks and crevices which are not cleaned by mastication of the food, and these form receptacles for ferment-

ing food stuffs. The daily use of the tooth brush would have a beneficial result. Notices regarding defective teeth were sent only to parents whose children suffered from inflamed and unhealthy gums, and whose teeth were decaying at the roots, showing abscess formation. Taken separately, the percentage of good teeth was—Girls, 26·8; boys, 21·0, showing a better percentage amongst girls than boys; but in both sexes 76·2 per cent. of the children have one or more decayed teeth.

*Defective Teeth.*

		None	1-4	5-8	9+
Girls	Number,	587	1082	474	46
	Percentage,	26·8	49·4	21·7	2·1
Boys	Number,	459	1173	514	35
	Percentage,	21·0	53·6	23·8	1·6

*Nose and Throat.*—Deformities of the palate number 19. Polypus was found in two children, and bifid uvula in four. Nasal catarrh is mostly found amongst the younger children; 14 cases are recorded.

*Tonsils.*—Enlarged tonsils are very common. 782 children are tabulated as suffering from enlarged tonsils, but some of these were not markedly enlarged. No notice was sent to the parents unless the tonsils were very large; in some cases these were found to be as large as walnuts, and meeting in the middle line of the throat, practically occluding the nasopharynx. Besides this 170 children suffered from inflamed tonsils, which was usually a passing ailment, although some of the throats were ulcerated, and the children were unfit to be at school.

*Adenoids* were present in 23 cases, and had been removed in seven. The presence of adenoids affects both speech and hearing. Submaxillary glands (those situated under the lower jaw) were enlarged in 87 children. In eight a sinus, or running sore, was present, whilst 19 had the marks of either a cicatrix or puckered scar in the neck. Enlargement of these glands is often confused with mumps, and I am inclined to think that of the 974 children, whose parents say they have suffered from mumps, the great majority has suffered only from enlargement of these submaxillary glands. Decayed teeth, inflammation of the gums, unhealthy mouths, enlarged tonsils, sores on the face or neck are fertile sources of glandular enlargement in the neck. The enlargement of the glands running down the back of the

neck is usually due to scalp irritation, caused by nits, vermin, and sores.

*External Eye Disease.*—By far the most common external eye disease is squint; 136 children suffer from this defect. They may have one or both eyes squint, and if a squinting eye is not properly treated by suitable glasses, the sight is gradually lost in that eye. In young children there is nearly always some degree of sight in the squinting eye. In five-year-olds the defect is often very slight, but in the 13-year-olds it is seldom any useful sight is found in the squinting eye.

Blepharitis or inflammation of the eyelids is generally the result of carelessness after measles or some such illness. Cleanliness and careful treatment soon cure this disease in all but the most chronic cases, which are very difficult to heal, and may result in the partial or total loss of eyelashes. Parents do not seem to realise the serious consequences of neglecting eye inflammation. 33 cases of ulcer on the cornea (or clear part of the eye which covers the coloured iris) were found. Most children had the inflamed eye tightly bound up with a handkerchief. Those ulcers, untreated or badly treated, heal up leaving a scar, and these scars cause a deflection of light rays, and are a fertile source of astigmatism and headache.

A few cases of styne and simple inflammation of the conjunctiva or lining of the eye were found.

*Vision.*—In tabulating vision each eye was tested separately. The number of those found slightly defective was 1200. In those cases no notice was sent to the parents. 610 were defective and 129 very defective, and a notice telling the state of affairs was sent to the parent. In most cases the parents took the child to the family doctor, who advised the child to consult an oculist, whilst 133 children got glasses, many promised to get them; but it is difficult for the working man to journey to Edinburgh or Glasgow, lose a day's work, and pay all the expenses of a day in town, plus the cost of the spectacles.

Stirling School Board have had the matter of "spectacle provision" under consideration for some time now. There seem to be many difficulties in the way, but a happy issue out of their deliberations is to be hoped for, and then some of the other School Boards may also take the matter up.

129 children are marked as very defective. In cases such as these the children cannot see the blackboard even from the front bench in school. Sewing was forbidden in the case of girls with very defective vision. One boy was sent to a blind institution. The girls' vision is much worse than boys'. Leaving out of account the non-routine cases, the total number of boys and girls examined was about equal, whereas the ratio



between defective and very defective sight in girls to boys was 214 to 114, or nearly twice the number of girls to boys. Whether the sewing which girls are taught makes any difference, or whether it is the difference of home life, it is hard to say, but in most counties the same proportion is found, many more girls than boys suffer from defective eyesight. As they become older, girls help in the housework, darn, sew, and do fancy work after school hours, whereas boys are out of doors mostly all Saturday, and never, as a rule, use their eyes for near work, out of school hours, after the minimum of home lessons has been accomplished.

*Ear Disease.*—76 children had discharging ears, whilst many more had suffered at one time or another from this ailment. Deafness was caused by wax in a few cases. Discharging ears is another disease which mothers treat with contempt. The clean mothers wipe the discharge with a clean rag and place a piece of cotton wool in the external auditory meatus, but, alas, for the indifferent mothers. They allow foul-smelling discharge to run down the neck, leading to the formation of sores on the outer ear and glandular enlargement in the neck, and the child becomes an annoyance to himself and others.

Hearing was only fairly good in 118 children, and 56 children were very deaf. Deafness in one or both ears is a great drawback to a child, both in school and in after life. In school many a punishment is inflicted for mistakes in dictation, &c., which could be avoided if the child heard plainly. The test used for hearing is the whispered voice, the child standing with closed eyes ten or more feet distant from the examiner.

Defects of speech are not very common, indistinct speech caused by adenoids or enlarged tonsils being most frequently met with. Stammering is more unusual.

*Mental Condition.*—The classes under this head are good, fairly good or medium, dull and backward, and mentally deficient.

Dull or backward are those children colloquially named "hopeless duffers." Many are on the border line of the mentally deficient class, and if special classes for the mentally deficient were formed, no doubt those merely dull or backward would benefit greatly by joining them. They are not quick in understanding, and the ordinary class gets ahead of them very soon. In school they are advanced standard after standard only because of their age.

31 are classed as mentally deficient. This class of child does no good at an ordinary elementary school. Their scholastic abilities never attain to anything higher than those of an ordinary child of five years or six years. Some are very well behaved, and sit quietly in their class place all day.

Others shout out and sing aloud any time, and are a source of annoyance to teachers.

*Heart and Circulation.*—The number of bad hearts that are revealed is one of the surprises of medical inspection. Sometimes the child has suffered from rheumatism or St. Vitus dance, and the parents are aware of the presence of the disease, but often they have just thought the child delicate and easily tired, and never have known that the heart was weak. In all cases of valvular disease the parent is warned of the danger of over-exertion, &c., and drill in school is reduced to a minimum. 121 children were found with some abnormality of the heart.

*Lungs.*—Many children come to school suffering from bronchial catarrh. 116 such cases were found; ten had bronchitis, and were sent home as unfit for school; one had pneumonia, and eleven phthisis, or consumption of the lungs. All the phthisis children were put under immediate medical attention, and are mostly doing well, although one child died six months after examination in school.

*Nervous System.*—Defects of this system are infantile paralysis, 13 cases; fits, 14 cases; and St. Vitus dance, eight cases. All cases of St. Vitus dance are sent home as unfit at present for school, and are advised to see a doctor at once.

*Tuberculosis* has three modes of attack—1, Lungs; 2, bones or joints; 3, glands. As already stated, eleven cases of commencing phthisis were revealed, 13 where tubercle had attacked the bones or joints, but here it was old standing; usually the bones had been scraped and the joints excised, and the disease was quiescent or eradicated. Tubercular glands were found in 17 children, those that were in the neck having been excised.

*Rickets.*—Rickets were present in 75 cases, attacking more boys than girls, and usually more evident amongst the younger children. This disease gives rise to many deformities, such as pigeon chest, 76; spinal curvature, 52; knock knee, 13; bow leg, four; deformed sternum or breast bone, twelve.

*Deformities or Defects.*—Deformities, other than those caused by rickets, were congenital hip, ankylosis or stiffness of joints, club foot, wry neck, hare lip, amputation of limbs.

*Skin Disease.*—68 cases of skin disease were found—mostly connected with want of cleanliness, such as itch, impetigo, &c.

*Other Defects or Diseases.*—Include nævus, one; gastric ulcer, one; boils, two; sebaceous cyst, one; anæmia, 20; abscess, three; enlarged thyroid, eight; encurisis, one; ulcer on leg, one; jaundice, one.

Of these the most important are anæmia and enlarged thyroid or goitre. Children suffering from these diseases were advised to consult a doctor at once.

*Notices Issued.*—824 notices to parents regarding some disease, defect of vision or hearing, were sent out. Card A, a notice about verminous children, was sent in 143 cases.

Very few cases require Card B, but there are a few, and in Stirling Burgh, at any rate, the parents have been summoned by the School Board to appear at their meeting. They are then warned, and put a month on trial. As yet we have not had any parents prosecuted, the summons from the School Board clerk being enough for most of them.

Card D relates to obstructed breathing, and reveals its dangers and significance. 52 such were sent.

When a notice is sent to parents informing them of the presence of some disease or defect, a stamped addressed return post-card, to be filled in by the doctor consulted, is enclosed. By those "return post-cards" we hoped to be able to learn the number of children whose defect was receiving treatment.

### NON-ROUTINE CASES.

A total number of 1218 non-routines was examined, but only those actually requiring treatment or to be kept under observation were entered in the card.

In some schools many "suspected verminous children" were put forward for examination, whilst in others the head teacher sent up a limited number. 32 various deformities were noted, mostly spinal curvature. In many cases this was curable by suitable treatment, but in the advanced cases little could be done to better the condition.

In the non-routine tables the "total children" figure does not tally with "total defects" figure, as many children had more than one defect.

Slightly defective vision was found in 247 children. Defective children numbered 375. Those must find school work a great strain, whilst the very defective, numbering 119, cannot see the board even from the front seat. The vision is reckoned as from the best eye. Thus if a child has one eye normal and one eye blind he would be entered as normal, because with both eyes open at a distance of 20 feet he can read the standard size of letters.

25 children suffered from external eye disease, 45 were slightly or very deaf, and 37 had some disease of the ear. Ten were defective in speech, and 26 had some abnormality of the nose and throat; only six children were examined for bad teeth, but this is such a common defect that the child would be very bad before the teacher brought him forward for

examination for that alone. Other non-routine cases include:—

Verminous heads,	-	-	-	-	-	67
Verminous bodics or clothes,	-	-	-	-	-	83
Skin disease,	-	-	-	-	-	26
Heart affection,	-	-	-	-	-	10
Lung trouble,	-	-	-	-	-	20
Some disease of the nervous system,	-	-	-	-	-	29
Mentally defective,	-	-	-	-	-	28
Very dull and backward,	-	-	-	-	-	33
Tuberculosis,	-	-	-	-	-	11
Infectious diseases,	-	-	-	-	-	5
Other diseases or defects,	-	-	-	-	-	40

Of the 960 entered, 24 were already under medical advice. 394 were given a printed notice to their parents telling of the defect found. Seven notices were sent about teeth. 73 cards were sent for verminous conditions. 34 parents were present, mostly parents who had the child examined at their own request.

The statistics of non-routines, although entered in a separate sheet, are included in the figures of the general survey of the 5588 examined.

The number of non-routine cases is very large this year; it will gradually get smaller as the bulk of the children come to be examined at the different specified ages. The most glaring defects have now been picked out, and we will hope remedied, either by now or in the immediate future.

A glance at the Amelioration Table will show that 113 children were supplied with glasses, and 211 got treatment for some bodily disease or defect. 229 consulted their family doctor, but, on being referred to a specialist by him, did not get any more treatment. The reasons for this were many and varied, but were chiefly poverty, or they were awaiting a suitable time to go to Glasgow or Edinburgh Eye Infirmary. Eight refused to get glasses because the parents objected to see the child wear them, and four gave no reason for not obtaining further treatment. 56 had left school, and nothing had been done to remedy the defect. 31 were not paupers, but were too poor to pay for medical advice; 33 did not consult a doctor, and took no notice of the printed card sent them, and twelve left the district and could not be traced.

In many cases of enlarged tonsils or obstructed breathing the family doctor advised operation. Often the parents were instructed to take the child for operation in the summer time. In 37 cases the doctors' advice was not followed.

In eleven cases the doctor gave no treatment, and four were incurable.

*Amelioration Table.*

School Board Areas.	Glasses provided.	Received treatment.	DEFECTIVE EYESIGHT.					Left School.	No action taken because of		Left district.	Family doctor's advice not carried out re enlarged Tonsils and Adenoids.	Doctor gave no treatment.	No return post-card received.
			Poverty.	Distance from Oculist.	Refusal to get glasses.	Carelessness.	Consulted family doctor. No further action taken because of							
									Poverty.	Reason unknown.				
Denny, -	16	22	2	38	1	5	9	2	3	...	3	4	16	
Dunipace, -	1	2	...	5	..	1	1	...	...	...	...	...	...	
Fintry, -	2	5	2	1	...	1	3	...	...	...	...	...	2	
Gargunnoch, -														
Kippen, -														
Kilsyth (Landward), -	8	7	...	8	...	...	...	...	...	...	...	...	10	
Kilsyth R.C., -														
Larbert, -	37	44	6	20	2	4	15	2	5	2	11	3	31	
Logie, -	2	10	2	1	...	...	...	...	...	...	...	...	...	
St. Ninians, -	18	34	9	36	2	11	12	1	8	1	12	1	5	
Stirling, -	49	81	15	66	3	19	16	26	17	9	10	3	42	
Totals, -	133	211	42	175	8	41	56	31	33	12	36	11	106	



Those marked "no return post-card sent" are mainly seven-year-olds, who were examined at the end of the school year, and we have not had time to find out what was done. The return post-cards, supposed to be sent by the doctor consulted by the parent, are not quite reliable, as several parents fill in the doctor's card themselves, or take the card down to the surgery to get it filled up without taking the patient with them. In the case of defective vision the family doctor fills in the card that he has seen the child and advised them to get glasses, but we cannot know whether the child has been provided with glasses until a visit is made to school to ascertain what has been done.

## REPORT BY DR. GRAHAME H. SKINNER.

### GENERAL.

This report deals with the period between the 16th May, 1910, and 31st July, 1911, and thus includes rather more than one year. The actual period, however, during which medical inspection was carried out was very little over one year, since the first few weeks were occupied in visiting schools for the purpose of explaining the details of the scheme to the head teachers.

The area and schools dealt with in this section of the report are detailed on page 2. The districts are very widely scattered, and the time spent daily in travelling is very considerable.

During the past year each school was visited twice for the purpose of routine examinations.

The number of routine cases examined was 3473, and the number of non-routine (exceptional) cases 877, a total of 4350 children.

In addition, special visits for the purpose of re-examining children who had been recommended for medical advice were made; the number of such additional visits was 92, and the number of re-examinations 1111. The total number of examinations therefore was 5461. 760 children were recommended for medical advice. This number represents 17·47 per centum of all children (routine and non-routine) examined. The medical inspector believes the re-examinations to be of much service in the direction of having defects remedied. The work of the nurses in this respect is as valuable as it is essential, and some attempt has been made in Table I. to indicate the benefits following their employment. Additional visits also were paid to schools in connection with outbreaks of infectious disease. In only one instance was closure of a department advised for the purpose of endeavouring to prevent an epidemic of measles. The attempt was a failure. The medical inspector gratefully records his thanks to the head teachers and teachers for their courtesy and ready help. A head teacher or a teacher was almost invariably present during the medical inspection. Their presence at the inspection and

the quiet exercise of their influence were the means of getting many defects remedied.

It would be a great advantage if teachers, where children have got glasses, would see that they wear them. One parent, who had been advised to have his son's eyes seen to, refused on the ground that he had got glasses for his girl, that she never wore them, and that the teacher never found fault with her.

The record cards also were practically invariably filled in, so far as that was possible, before the arrival of the medical inspector, and in some cases the heights and weights of the children had also been taken and filled in. Medical inspection was rarely objected to by parents. The statement generally made in such cases was that the parents would get a doctor if they saw any need for it. The probability that a trained medical observer would be better able to detect defects, and to detect them earlier than themselves, does not seem to have crossed the minds of these people, nor the fact that many of the defects notified to parents by the medical inspector would have been previously remedied if their existence had been recognised or their importance realised.

A few other children were believed to be kept at home during the medical inspection on account of doubtful cleanliness, although one small boy so suspected, when he ultimately did turn up, stoutly maintained that he had had no trousers—a reasonable excuse, although one that should not have been possible.

The great amount of noise habitually prevailing in many schools constituted one of the greatest difficulties the medical inspector met with in the performance of his duties. A note on this subject is included in the report.

An attempt to tabulate the time taken to get defects remedied was given up as being impracticable. The time taken varied greatly, and in very many cases the opportunity of ascertaining it with any degree of accuracy was wanting. The time taken to see a doctor and the time taken to have a defect remedied seldom coincide.

TABLE I.—PART I.

*Synopsis of Cases recommended for Medical Advice.**(Routine and Non-Routine.)*

Total number of children affected, - - - - - 760 Total number of defects, - - - 1058 Average defects per child, - 1.4	Defects other than Defects of Vision.		Defects of Vision (Squint, Corneal Opacity, and Cataract included).	
Number of defects where a doctor had been consulted and defect remedied, regularly treated, declared irremediable, or treatment unnecessary, - - - -	247	45.2°/.	139	27.1°/.
Number of defects where a doctor had been consulted and apparently no action taken, - -	11	2°/.	26	5°/.
Number of defects where the defect was not remedied or regularly treated until after re-inspection by the S.M.I., or home visits by the nurse, or both, a doctor having been consulted before or subsequent to such re-inspection and visitation, - - - - -	123	22.5°/.	76	14.8°/.
Number of defects where a doctor had been consulted, the child re-inspected by the S.M.I., the home visited by the nurse, and apparently no action taken, - -	92	16.8°/.	165	32.2°/.
Number of defects where a doctor had not been consulted and the defect remedied or regularly treated. Cases re-inspected by the S.M.I., and where necessary home visited by the nurse, - -	39	7.1°/.	23	4.5°/.
Number of defects where no doctor had been consulted and apparently no action taken. Cases re-inspected by the S.M.I. and home visited by nurse, - - -	34	6.2°/.	83	16.2°/.
Totals, - - - - -	546	100°/.	512	100°/.

## CHILDREN RECOMMENDED FOR MEDICAL ADVICE.

760 children were recommended for medical advice. The number of defects was 1058, an average of 1.4 defects per child.

In Table I. is shown a synopsis of these defects.

The results, or lack of results, following on the notification of the defects to parents or guardians are also shown.

The table, then, is a table of defects; from it a clinical picture of any individual child cannot be deduced.

One feels that such a table is neither scientific nor human; for to say that 760 children presented 1058 defects indicates nothing with regard to the individual child, and it is with the individual child that one has to deal.

It is this submerging of the individual that is the most serious fault of the table; since, however, many children had more than one defect, and since the combinations of defects shown by successive children varied greatly, such a table seemed the only way of giving a synopsis of all the defects found, and a synopsis of these seemed desirable.

*(See Table I.—Part II.)*

It would be otherwise almost necessary to detail each child separately, which clearly would not be practicable. In order to minimise as much as possible this submerging of the individual the principal defects will be, in addition, separately dealt with.

It will be observed that defects of vision are tabulated separately in the table. This was done in view of the essential difference in the nature of the treatment required—

Number of Children who obtained Medical Advice.		Number of Children who did not obtain Medical Advice.
Post-Card returned.	Post-Card not returned.	
485	144	131
629 82.763%.		131 17.237%.



TABLE I.—PART II.—*Analysis of Defects.*

Deformities.		Nose and Throat.	
Spinal Curvature, - - -	5	Mouth Breathing, - - -	10
Knock Knee, - - -	1	Enlarged Tonsils, - - -	42
Bow Legs, - - -	2	Tonsillitis, - - -	1
Cleft Palate, - - -	2	Adenoids, - - -	61
		Enlarged Glands, - - -	13
		Others, - - -	3
Vision.		Speech.	
Slightly Defective ( $\frac{6}{9}$ or $1\frac{1}{2}$ ),	154	Stammering, - - -	1
Defective ( $1\frac{1}{8}$ to $\frac{6}{8}$ ), - - -	232	Indistinct, - - -	1
Very Defective ( $\frac{6}{8} \times$ ) - - -	45	Nasal, - - -	1
Eye.		Heart.	
Squint, - - -	73	Organic Murmur, - - -	4
Nystagmus, - - -	4	Defective Circulation, - - -	1
Blepharitis, - - -	42		
Stye, - - -	2	Lungs.	
Conjunctivitis, - - -	7	Bronchitis, - - -	6
Corneal Ulcer, - - -	1	Others, - - -	3
Corneal Opacity, - - -	14		
Keratitis, - - -	5		
Others, - - -	4		
* Hearing.		Nervous System.	
Medium, - - -	59	Chorea, - - -	2
Bad, - - -	29	Paralysis, - - -	1
Ear.		Tuberculosis.	
Otorrhœa (right), - - -	27	Glandular, - - -	2
Do. (left), - - -	41	Abdominal, - - -	1
Do. (both), - - -	18	Other Forms, - - -	1
Wax, - - -	4		
Others, - - -	1		
Skin Disease.		Infectious Diseases.	
Eczema, - - -	5	Measles, - - -	31
Scabies, - - -	6	Whooping-cough, - - -	2
Impetigo, - - -	6		
Ringworm (head), - - -	21	Other Diseases or Defects.	
Do. (body), - - -	2	Anæmia, - - -	3
Psoriasis, - - -	2	General Debility, - - -	8
Sores on Scalp, Face, &c., -	22	Hernia, - - -	9
Alopecia, - - -	3	Various, - - -	12

\* NOTE.—Twenty-three out of fifty-nine having medium hearing, had only one ear affected. Eleven out of twenty-nine having bad hearing, had only one ear affected.

In view of the method of compilation of Table I. the following figures are interesting. It will be observed that the percentages in the two sets of figures are in close agreement:—

Number of Defects presented by Children who obtained Medical Advice.	Number of Defects presented by Children who did not obtain Medical Advice.
879	179
83·081%.	16·919%.

Part I. of Table I. is probably one of the most important parts of this report, showing as it does how much has been accomplished in the remedying of defects notified to parents, and how much yet remains to be done.

The subdivisions of Part I. explain themselves, and nothing need be added except to point out that the defects included in the second column of both classes of defects mostly occurred in children who left school soon after the medical inspection, and who therefore could not be followed up.

The principal facts that can be drawn from Part I. of Table I. are set out below.

Of 1058 defects, 546 (51·6 per cent.) were defects other than defects of vision; 512 (48·4 per cent.) were defects of vision.

Defects of vision therefore total nearly one-half of all defects recommended for medical advice.

*Defects other than Defects of Vision.*—Of 546 defects other than defects of vision a doctor had been consulted in respect of 473 (86·6 per cent.). Of these 473 defects, 370 (67·8 per cent. of this class of defect) were remedied, regularly treated, declared irremediable or treatment unnecessary. The remaining 103 defects (18·9 per cent. of this class of defect) were not, in the opinion of the medical inspector, satisfactorily dealt with, or were not dealt with at all. In respect of 73 defects (13·4 per cent. of defects of this class) no doctor had been consulted: of these 73 defects, however, 39 (7·1 per cent. of defects of this class) were remedied or regularly treated. To sum up, of 546 defects other than defects of vision 409 (74·9 per cent.) were remedied or adequately looked after. The remaining 137 (25·1 per cent.) were neither remedied nor adequately treated.

*Defects of Vision.*—Of 512 defects of vision a doctor had been consulted in respect of 406 (79·3 per cent.): of these 406 defects 215 (42 per cent. of total defects of vision) were

remedied, declared irremediable or treatment unnecessary. The remaining 191 defects (37·3 per cent. of total defects of vision) were not remedied. In respect of 106 defects (20·7 per cent. of total defects of vision) no doctor had been consulted: of these 106 defects, however, 23 (4·5 per cent. of total defects of vision) were remedied.

To sum up, of 512 defects of vision 238 (46·5 per cent.) were remedied or adequately looked after. The remaining 274 (53·5 per cent.) were not remedied or adequately looked after.

If the two classes of defects are taken together it will be seen that out of a total of 1058 defects 647 (61·2 per cent.) were remedied or adequately treated. The remaining 411 defects (38·8 per cent.) were not remedied or adequately treated, and of these 411 defects, 274 (66·6 per cent. of defects not attended to) were defects of vision, the remaining 137 defects (33·4 per cent. of defects not attended to) being made up of such defects as enlarged tonsils, adenoids, blepharitis, otorrhœa, deafness, &c.

One other general statement may be made. Medical advice was obtained in respect of 879 defects (83·1 per cent.). This is a large proportion, and is probably accounted for by the fact that much of the medical work in the areas under consideration is contract work. There is therefore little difficulty in many cases in obtaining medical advice.

The facts that while 83·1 per cent. of the defects were brought under medical attention, only 55·3 per cent. (585 defects) of the defects were remedied, are largely accounted for by the failure of the parents or guardians to carry out the treatment advised or the advice given, as in cases of otorrhœa and defective vision.

### DEFECTS OF VISION.

The number of children recommended for medical advice on account of defective vision was 440: of these, 181 obtained glasses, and eleven were informed that glasses would be of no avail. In all, then, 192 children were attended to (43·6 per cent.).

The remaining 248 (56·4 per cent.) were not attended to: of these, 75 had left school by the end of the session, all being of leaving age or exempted unless 18, and with one or two exceptions these 18 left for schools outside the county, several going abroad.

Deducting these 75 children, there are 173 children left, whose vision had not been attended to. If from this number is deducted the number of children who, while they had good serviceable vision with both eyes open, had been recommended to have their eyes seen to on account of the vision of one eye being 6-18ths or worse, and had not been attended to—34 in all

—we find that there are left of the children examined during the year 139 (31·6 per cent. of total cases of defective vision) who are in more or less urgent need of having their eyes attended to. This number includes certain children who had good, serviceable vision with both eyes open (6-12 at least), and who were recommended to obtain medical advice on account of additional signs and symptoms, *e.g.*, blepharitis, squint, headache, &c.

*Squint.*—The cases of squint numbered 73, mostly of the convergent variety, and the vision in the squinting eye, where it could be tested, was usually very defective.

The onset of this form of squint is most usual in the second and third year of life, and should receive attention as soon as it is noticed, if treatment is to give satisfactory results. This is one of the defects the evil effects of which might be greatly minimised if the importance of early treatment was pointed out to parents by district visitors, health visitors, and others, and forms one of the many conditions that hopeful parents expect their children “to grow out of.” The vision in an untreated squinting eye deteriorates very rapidly, and by the time the child comes to school is usually very defective. The condition is also a very disfiguring one, and when the vision has become so defective the prospect of improving it by wearing glasses is not great, although by that means the position of the eye may in many cases be rectified.

It is a source of modified satisfaction to be able to state that at least two-thirds of the children who obtained glasses had their eyes tested and glasses prescribed by medical men. The remaining third had their eyes tested at various shops selling glasses.

This latter cannot be considered to be satisfactory, although no objection could be taken to such shops supplying glasses according to the precise prescription of a medical man.

In 56 cases of defective vision (six of whom have now left school) the reason for not having the condition remedied was definitely stated to be inability to bear the cost.

It is interesting to observe that of the 50 cases still remaining at school no less than ten had very defective vision. The question of cost comes under two heads—the cost of the glasses themselves and the cost of travelling backwards and forwards to an eye hospital, for when the question of cost enters it may be taken that the consideration of a specialist's fee does not enter. The average number of times a child has to be taken to hospital before glasses are finally prescribed varies—with the practice of the hospital and the nature of the defects—from once to thrice. It will thus be seen that the cost of the glasses themselves may form the smaller item of the expenditure. Upkeep has also to be considered.

Expense therefore accounts for many cases not being attended to; lack of time and opportunity account for others.

Others, again, are due to failure to appreciate the importance of having the condition remedied. Some refuse because they "don't see anything wrong with their child's eyes," and one parent refused to get advice on the ground that her child, who was eleven years of age, was "getting into the way of seeing," and doubtless her observation was correct. The older the child became the more readily would he correctly interpret the blurred images conveyed to his brain through his optically defective eyes.

The enormous difficulties put in the way of many a child's education—to the child and to the teacher—through failure to have its vision corrected, if happily that be possible, as it is in the great majority of cases, can perhaps be best appreciated by allowing the mind to dwell for a moment on this parent's statement, that at eleven years of age his boy was "getting into the way of seeing." It is no isolated instance. The vision of 2217 routine cases was examined, and the results are given in the tables of routine cases. For convenience of comparison they are tabulated here. Many children can see better with one eye than with the other, and the tables are made up according to the vision in the best eye, practically according to the amount of vision possessed by the child with both eyes open. For example, of 47 children having normal vision in one eye, 22 had defective and 27 very defective vision in the other eye. These children are classed as having normal vision. Again, of 43 children having "slightly defective" vision in one eye, eleven had defective and 32 very defective vision in the other eye. These children are classed as having slightly defective vision.

It will be seen from the tables that the boys on the average possess better vision than the girls, and that the vision of children thirteen years of age is not on the whole so good as the vision of the children seven years of age.

#### *Otorrhœa.*

Apparently cured, - - - - -	38
Still under regular treatment, - - - - -	26
No regular treatment or no attempt at treatment, - - - - -	22
<hr/>	
Total cases, - - - - -	86

One ear affected, 68; both ears affected, 18.

If otorrhœa is initiated or kept up by the presence of adenoids the condition is not likely to be permanently cured



AGE.	BOYS.				GIRLS.				Number Examined.	
	Normal, $\frac{6}{6}$	Slightly defective, $\frac{6}{6} - \frac{6}{12}$	Defective, $\frac{6}{18} - \frac{6}{36}$	Very defective, $\frac{6}{60} +$	Normal, $\frac{6}{6}$	Slightly defective, $\frac{6}{6} - \frac{6}{12}$	Defective, $\frac{6}{18} - \frac{6}{36}$	Very defective, $\frac{6}{60} +$	Girls.	Boys.
7 Years, -	80.16	16.33	31.6	.33	76.18	18.07	5.4	.33	592	600
13 Years, -	73.21	20.23	5.97	.57	70.15	22.52	5.53	1.77	506	519
7 Years and 13 Years, }	76.94	18.14	4.46	.44	73.4	20.12	5.46	1.	1098	1119

Taking together the boys and girls of both ages, the percentages are as follow :—

BOYS AND GIRLS.				
Normal.	Slightly defective.	Defective.	Very defective.	Number Examined.
75.19	19.48	4.99	.72	2217

until the adenoids are removed. In several of the above cases this was done, with, in each case, the cessation of the ear discharge, after a comparatively short time.

It may be stated here that small amounts of lymphoid tissue (adenoids) about the orifices of the Eustachian tubes are enough to cause and to keep up otorrhœa in children. The hypertrophy of the lymphoid tissue is not necessarily great enough to cause obstruction to nasal respiration, and hence these children are not by any means all mouth breathers, nor need they present the usual gross signs and symptoms generally associated with the presence of adenoids sufficiently large to cause nasal obstruction.

In cases not dependent on the presence of adenoids the remedial treatment must, as a rule, be regularly carried out over a considerable period of time before cure is obtained. It is just here that the parents, left to themselves, very often fail.

The attention given to the ear, especially if improvement is not soon appreciable, becomes less and less, and finally altogether ceases. Too early cessation of treatment in cases apparently cured accounts for many intermittent otorrhœas.

It is in cases such as these that the value of the school nurses is felt, and especially the value of the district nurses who are doing school work. It is difficult to speak too highly of the work they have accomplished. Many of the cases of deafness in one or both ears were associated with otorrhœa. Cases of deafness due to previous prolonged otorrhœa seem to be peculiarly hopeless as regards restoration of hearing power. This renders it all the more necessary that cases of otorrhœa should be persistently treated to a termination.

*Enlarged Tonsils and Adenoids.*—The harmful effects frequently attending the presence of enlarged tonsils and adenoids are now well known, and will not be gone into.

*Enlarged Tonsils.*—Eight cases of chronically enlarged tonsils were recommended to obtain medical advice, and seven did so. Of these, three had the tonsils removed, and one is undergoing medical treatment.

*Adenoids.*—30 cases of adenoids were recommended to obtain medical advice, and 29 did so. Of these, 19 had the adenoids removed by operation, while two were recommended that operation in the meantime was unnecessary, and were medically treated.

*Enlarged Tonsils and Adenoids.*—32 cases of enlarged tonsils and adenoids were recommended to obtain medical advice, and 29 did so. Of these, 16 had the tonsils and adenoids removed by operation, and two are under medical treatment.

To sum up, 70 cases were recommended to obtain medical

advice on account of the above conditions, and 65 (92.9 per cent.) did so; 38 (54.3 per cent.) were operated on; five (7.1 per cent.) were medically treated; 27 (38.6 per cent.) had nothing done so far as could be ascertained. A considerable number of the latter, however, were recommended by the doctors consulted to have an operation performed. There is good reason to believe that in some cases this advice will be carried out. The delay is due in some cases to difficulty in obtaining the necessary time to take the child to a hospital (since the operation is rarely done, one finds, by the general practitioner, at least in club practice), to difficulty in making the necessary hospital appointment, and to difficulties of ways and means.

*Ringworm.*—21 cases of ringworm of the scalp were discovered. One of these removed to another county, and the headmaster of the school to which the boy went was notified of the disease. At the time of writing eight cases were cured, five were much improved, two were not seen, and the remaining five were in an unsatisfactory condition.

It should be clearly understood that once the medical inspector has notified a case as being ringworm the precaution of keeping the head covered should be insisted on by the teacher until the medical inspector certifies the child free from infection, however long the interval may be.

38 microscopical examinations were made.

*Hernia.*—Three cases of hernia had the radical cure performed, and one was apparently cured by circumcision. The others already wore or obtained trusses, except one case where a truss was inapplicable, the hernia accompanying abdominal tuberculosis.

*Cleft Palate.*—Two cases of cleft of the soft palate were successfully operated on for the cure of the condition.

*Clothing.*—The majority of the children were sufficiently clad, the clothing being clean and in good repair.

The figures given in the tables are the teachers' estimates of the usual condition of the clothing.

At the inspection some children were found to be over-clad, but in a number of such cases this trait was probably not habitual, being directly due to the advent of the medical inspection.

The clothing of a considerable number of children, however, was found to be dirty and in disrepair. One could not help coming to the conclusion that the sewing on of buttons must be an art in itself, and in many homes largely a lost art. Buttons once off are never replaced, and pins are not looked upon as being temporary expedients. Three cases seen in

rapid succession, illustrative of this, and of the devices to which it gives rise, may be quoted. A small boy was presented for inspection without a single button on his trousers, these being somewhat precariously maintained in position by a single brace fastened at each end with pins.

Another boy had a long slit—apparently cut with a knife—in the back of his garment: a piece of string was tied through this and to his braces. In front one end of the braces was split so that it could be tied through a button-hole originally destined for another purpose. The end of the other brace had a slit cut in it so that it could be placed over the button originally meant for the button-hole aforementioned. A third boy was thought to have a serious curvature of the spine, as he was observed to have one shoulder much higher than the other. Investigation, however, revealed that the attitude was a voluntary one, assumed to enhance the action and maintain the position of the single brace remaining in operation, the other being temporarily out of action due to a lack of buttons. Patching and darning in the same homes have largely fallen into desuetude.

It has been stated that in Spain once a road is made it is left alone until reconstruction becomes necessary. Repairs are not thought of; it is the custom of the country. Judging from appearances, many people here go one better than that, and once garments are donned they are left severely alone until even reconstruction is out of the question.

This can only be ascribed to carelessness and indolence, the handmaidens of thriftlessness. The same remarks apply to boots, and that this weakness is known, and even pandered to by certain shopkeepers, is evidenced by a placard the writer remembers seeing prominently placed in a shop window in a district not altogether innocent of offence in these matters, and bearing the legend, "Why get old boots mended when you can get a new pair for——?"

*Cleanliness of the Skin.*—Very many children, and especially in certain schools, showed no evidence of having any regular acquaintance with a bath. Probably most of them had no bath in their homes to become acquainted with. A bath, however, while it renders the process easier, is not an essential element in personal cleanliness, and the lack of a proper bath cannot be held to exonerate the parents from blame in this matter. One expects that if the parents of these children could have been examined the state of affairs in their own case would have proved to be little different. It is to be hoped not, at any rate.

There are still large numbers of people who, save for the

usually visible parts of it, simply ignore their skin. Even the portions customarily visible are not always attended to, as in the case of one boy who was asked how often he washed his face, and who immediately replied, in a somewhat hurt tone, that he "washed it *some* days in the week."

It does not yet appear to be common knowledge that the skin is not merely an outer covering for the body, but is a living organ, having important functions to perform, nor is it recognised that nothing increases the sense of well-being and of self-respect more than the feeling of being clean. Many of these children can hardly know what it is to feel clean. This is apart altogether from the question of vermin.

A set of spray baths is urgently required in certain schools, and would be an undoubted advantage in all. In one such school an analysis of 115 one-roomed houses from which children were drawn showed that the average number of occupants per room was 5.54. The maintenance of cleanliness under such conditions cannot be easy.

Personal hygiene should be practised. It is the only way to teach the rising generation. Their parents cannot be taught. Once the habit of cleanliness has been acquired it is unlikely, readily, to fall into abeyance. "Habit," it has been said, "is the memory of the body."

The following table gives the percentages of the routine cases examined:—

*Cleanliness.*

	HEAD.			BODY.			Number Examined.
	Good.	Medium.	Bad.	Good.	Medium.	Bad.	
Girls, - -	51.66	46.38	1.88	56.19	40.54	3.26	1591
Boys, - -	56.51	42.23	1.25	56.56	34.05	3.58	1674

*Nasal Hygiene and Breathing Exercises.*—Many children are not provided with handkerchiefs or any substitute for them, and very many of those so provided do not know how to use them properly.

Time and again, and most frequently of course in the colder months, children are presented for inspection snuffling, a stream of muco-purulent material depending from each nostril, and in many cases reaching the margin of the upper lip. Snuffling and oral snetion, with an occasional application of the sleeve, take the place of the handkerchief.



The proper cleansing of the nose is an acquired art, and is of greater importance than might appear at first sight. The majority of children who possessed handkerchiefs and were asked to use them merely wiped the upper lip and the orifices of the nostrils, the result being that, while the actually visible discharge was removed, the superabundant material in the nose was not, and snuffling immediately began afresh.

Many cases of mouth breathing with its disadvantages are due simply to inattention to this detail, and that without the necessary presence of adenoids, although all are agreed that no better incentive to the growth of adenoids could be provided. Closely associated with the above is the question of respiratory exercises.

It may be stated at once that the experience of the writer points to the conclusion that these exercises are frequently not efficiently taught in schools. He has been informed that in some schools handkerchief drill has been given up on account of the dearth of handkerchiefs. This does not appear to be an adequate reason for stopping this important exercise. Handkerchief drill also should always precede breathing exercises.

A simple, effective, and inexpensive method would be for school authorities to provide a stock of squares of thin, tough paper sufficiently flexible for the purpose in hand. One or two sheets could be distributed to each child, and handkerchief drill proceeded with. It is of the utmost importance that each child be taught to blow its nose properly, and this demands individual tuition, as does the art of proper respiration, both inspiration and expiration being performed through the nose.

Adventitious exercises, such as movements of the arms, &c., should not be practised until the art of proper breathing has been acquired, since there would be an undoubted tendency to pay too much attention to such movements to the neglect of the respiratory movements. A quantity of these paper handkerchiefs could with great advantage be permanently kept in infant and junior class rooms, and be distributed by the teacher when necessary.

*Verminous Conditions.*—The homes of the great majority of the verminous cases were visited by the nurses, 343 visits having been made in respect of 94 cases, an average of 3.64 visits per case.

In many cases only one or two visits were necessary; in others, however, many visits were made often with little result. These latter are the persistently verminous cases—the carriers of the infection to their neighbours in school. One has every sympathy with those parents who complain that their children

get infected at school, but that this statement cannot be unreservedly accepted in all cases is illustrated by one instance in which a head teacher had sent a child home as being in a verminous condition. He was soon confronted by an irate mother, who stoutly maintained that the child had got infected in school. When it was opportunely pointed out to her, however, that at that precise moment a large specimen of the insect in question was making steady progress across her own ample bosom, the rising tide of a torrential eloquence was suddenly stemmed.

The persistently verminous child presents a difficult problem, and one feels that little progress will be made until the condition of the home in these cases is investigated by the sanitary authorities, and remedial measures taken where necessary.

The child itself is in no wise responsible for the condition in which it finds itself, and must be as tenderly dealt with as circumstances will permit. The continual pillorying to which these unfortunates are apt to be subjected, by being sent home, by being kept apart, by the open contempt of their fellows—for children can be very merciless to each other—must tend to make them lose their sense of self-respect, and, once lost, who shall say that it will ever be regained? The results of home visitation by the nurses have been, on the whole, good, but, as has been indicated, there always will be a residuum of cases where *force majeure* will be necessary.

In the interests of the child the means adopted should be vigorous and deterrent. So far moral suasion only has been tried. It is to be hoped, however, that School Boards will deal promptly and effectively with any cases submitted to them in future. This will only be done when all other available means to secure a remedy have failed.

The following table indicates the percentage results in the routine cases:—

	HEAD.		CLOTHES.	
	Nits.	Vermin.	Vermin.	Number Examined.
Girls, - - -	47·39	1·38	1·44	1591
Boys, - - -	5·91	·05	·89	1674

*Nutrition.*—Nutrition was estimated according to the general fitness of the child.

Few children were met with who could be reasonably suspected of getting too little food, although a large number were probably improperly fed.

Much has been written on improper feeding, and all that need be recorded here is that the indications somewhat persistently point to a good deal of it being due to unwillingness to take the necessary trouble to prepare wholesome articles of diet. Ready-made and easily prepared articles take the place of more wholesome and often cheaper foods. One other aspect of this matter forced itself into notice. A very large number of children, especially in mining communities, never have a proper meal in the middle of the day. It is probably generally agreed that a growing child should have a substantial meal, *i.e.*, dinner, at that time.

The above children are divided into two sets—those who can and those who cannot (on account of distance) get home in the middle of the day. In mining communities the workers often return home in time to have dinner about five o'clock. In the great majority of such cases the child on returning from school in the middle of the day gets a "piece" and a cup of tea, rarely indeed milk takes the place of tea, and has dinner at five o'clock, when tea is again frequently in evidence. In the case of children who are unable to get home a "piece" is carried; very rarely, comparatively, is a flask of tea, which can be heated at the school fire in cold weather, or a bottle of milk, also carried. These children, of all school ages, may have two or three miles to walk to school, and an eight or ten hours' interval between the time of leaving home and returning there.

The statement of one schoolmaster that it was very little use endeavouring to teach some of these children in the afternoon is just what might be expected.

It is unnecessary to dilate on the subject. Having regard, however, to the large number of children in many schools who are unable to get home at the mid-day interval, a lunch room should probably form an integral part of every such school, and provision be made for the preparation and dispensing of at least one hot course, at any rate, in cold weather. Home visitation by district visitors and the distribution of leaflets might improve matters in the case of the children able to get home.

These latter children have the advantage over the others in that they can get something hot—whatever it be—in the middle of the day, and can get rested and warmed, and, if need be, have damp clothes properly dried.

The tables given below for convenience of reference show that the girls were, on the average, better nourished than the boys.

*Nutrition.*

AGE.	BOYS.			GIRLS.			Number Examined.	
	Good.	Medium.	Bad.	Good.	Medium.	Bad.	Boys.	Girls.
5 Years, - -	44·32	54·05	1·62	51·11	48·27	·62	555	493
7 Years, - -	51·	44·66	4·33	56·41	41·72	3·54	600	592
13 Years, - -	58·18	40·46	1·34	66·99	33·2	·19	519	506
5 Years + 7 Years + 13 Years.	51·01	46·47	2·5	58·13	41·04	1·57	1674	1591

The following figures represent the percentages obtained, taking the three ages and the two sexes together:—

Good.	Medium.	Bad.	Number Examined.
54·48	43·82	2·05	3265

*Teeth.*—Intimately concerned with nutrition is the condition of the teeth and the presence or absence of oral sepsis.

The percentage tables given below indicate what was found in the children examined. The boys show up rather better than the girls in this respect.

Experience in other places has shown that any scheme involving payment, however small, by the parents of the children treated would prove a failure. Children entered as having “no decayed teeth” do not necessarily have a complete set of teeth—

AGE.	BOYS.				GIRLS.				Number Examined.	
	None Decayed.	1 to 4.	5 to 8.	9 and over.	None Decayed.	1 to 4.	5 to 8.	9 and over.	Boys.	Girls.
5 Years, -	18.19	41.8	25.76	14.23	16.43	40.56	29.81	13.59	555	493
7 Years, -	10.66	29.5	36.5	23.33	10.13	33.27	39.02	17.56	600	592
13 Years, -	20.42	62.62	14.83	2.11	17.19	56.71	21.14	4.94	519	506
5 Years + 7 Years + 13 Years.	16.18	43.84	26.23	13.73	14.33	42.99	20.48	12.31	1674	1591

Taking the three ages and both sexes together, the percentages are—

None Decayed.	1 to 4.	5 to 8.	9 and over.	Number Examined.
15.28	43.43	28.3	13.04	3265



## MENTALLY DEFECTIVE AND DULL AND BACKWARD CHILDREN.

There is no hard-and-fast line between mentally defective children and children merely dull and backward, and until children, apparently on the border-line between the two states, have had the opportunity of being taught under conditions which experience has already shown can be taken advantage of by children merely dull and backward, the problem of differentiating between them will remain a very difficult one.

The Education of Defective Children (Scotland) Act, 1906, is practically a dead letter, and mentally defective children are simply ignored, though their presence in the schools is perfectly well known to the authorities. While going round a school the writer entered a clean, well-lit classroom when the classwork was in full swing. The benches were filled with a bright, intelligent-looking, and industrious set of children bending over some copy book work on the desks in front of them. On the very front seat, however, alone, sat a boy with a mindless face, taking no part in the work, and obviously taller and older than the other children in the room. As he sat he ceaselessly swayed his body backwards and forwards with a rhythmic motion, at the same time clasping his hands together and unclasping them in the same rhythm. The incident illustrates the mentally defective child in school, and indicates how little he is likely to benefit from his presence there. That the presence of such children may be actively harmful to their normal fellows, and constitutes a hindrance to the work of a class will be apparent. It has been shown that the great majority of cases of mental defect are due to inherited defect, and that inter-marriage is a powerful contributing cause. Such investigations as the writer was able to make into the family histories of cases coming under his notice confirmed the above conclusions, the evidence being especially significant where two or more members of a family were mentally defective. As the law at present stands School Boards and Parish Councils can make provision for the education of mentally defective children until they attain the age of sixteen years. After that age no control can be exercised over them unless they can be certified as suitable for asylum treatment.

Since a mentally defective child remains mentally defective to the end of its days, it is obvious that nothing less than effective supervision for life is essential, if any means of control over the increase of this class is to be obtained, and, further, effective supervision for life is the only means whereby they may, in some measure, contribute, sometimes very materially

to the cost of their training and upkeep. "While the birth-rate of the best elements of all classes—of the skilled artisan no less than the landed family of ancient lineage and the professional man of eminent ability—is falling fast, that of the casual labourer of thriftless stock and of the feeble-minded class, still at large in our midst, remains at its old high level." The position of the children who are merely dull or backward also deserves attention.

Time is lacking in an ordinary class to give such children the painstaking individual tuition they require. A sort of compromise is effected by retaining them in classes normally occupied by much younger children. This can be good neither for the one nor the other. How the difficulty is to be met in small places does not at present emerge. In the larger centres of population special classes could be arranged, with special standards of attainment in suitable subjects.

### CLEANSING OF SCHOOLS AND ALLIED MATTERS.

The most practical form of disinfection of schools consists in thorough systematic cleansing. Obviously, also, a thoroughly clean school will have a purer atmosphere than a school not so clean. An excellent set of regulations regarding this matter is usually in existence, but regulations, however excellent, if not acted up to, will never keep a school clean.

The system adopted by many school authorities of having a cleansing register kept at each school is a good one, and worthy of being generally adopted. The standard of cleanliness reached in many schools is high, and the work is methodically and carefully done. In other schools, however, the reverse is the case. The methods of performing the daily cleansing vary a good deal.

Before the sweeping is begun the floor should be liberally sprinkled with some such substance as damp sawdust. This, to a large extent, prevents the raising of dust, but since it does not altogether prevent it, a reasonable interval should elapse between sweeping the floors and dusting the school furniture, so that any dust raised may have had time to settle. The sweeping, for this reason, is preferably done in the evening and the dusting in the morning, and damp dusters should always be used.

If open fires are in use the fireplaces should be cleaned, and the fires set ready for lighting some time before dusting is begun. On the whole, while many schools are kept unexceptionally clean, in many others the work of daily cleansing appears to be very hurriedly and imperfectly done, and this

applies especially to the cleansing and dusting of school furniture. In four or five small schools a dust-laying preparation is in use, and appears to give satisfaction. On several occasions head teachers have informed me that they have repeatedly spoken to the school cleaners regarding the condition of the school with no apparent result. Members of school committees have also been spoken to with a similar lack of result. The position seems an anomalous one.

Clearly, however, the question of the daily cleansing of schools is one that in many quarters does not receive the attention its importance deserves. A schoolroom, when the scholars enter it in the morning, should be so clean and tidy in all its details as to serve as an object-lesson to them. This will do more good than much teaching of hygiene.

The floors, generally speaking, are scrubbed once a month or once in six weeks. Probably the latter interval should not be exceeded. The desks, &c., are generally stated to be washed at similar intervals.

Cleaning of windows should be done whenever necessary at the discretion of the head teacher. Two matters having an important bearing on the question of school cleanliness may be mentioned here. These are the provision of doormats and the nature of the surface of the playgrounds.

In some schools rolled metal or wire mats are placed outside the door, while fibre mats are placed inside the door. A teacher is stationed at each door through which the children enter, who sees that some attempt is made to clean the feet—when circumstances demand it. This is probably the best possible arrangement. In other schools, however, no door mats of any description are provided, and in some where mats are provided no effort is made to ensure their use. It has been suggested that to make every child in a large school stop and wipe its feet on entering would take up a considerable time, but if the mats were sufficiently large no stoppage would be necessary, since a rapid “scuffle” over the whole length of the metal and fibre mats would do all that was necessary, and children are adepts at “scuffling.”

There can be no doubt that from the point of view of cleanliness both of the children and of the school, the playground covered with an impervious substance and drained is the best, and that covered with cinders is probably the worst. The objection to whin or granite chips is that the edges of the broken metal are very sharp, and take a considerable time to become rounded off. The same objection does not apply to medium-sized gravel, which is probably the best covering for a playground next to an impervious covering. The playground covered with cinders is the one most fre-

quently met with; not very many playgrounds have an impervious covering in whole or in part, and a few are naked earth.

Cinders are readily "lifted," even in dry weather, by the feet of the children, and rapidly become ground down into a fine powder, easily raised into the atmosphere. The cleanliness of scholars and school alike suffer under these conditions.

The surfaces of such playgrounds also frequently get into a deplorable condition in wet weather.

Water has been introduced into the great majority of schools, and wash-hand basins, with soap and towels, are provided. The frequency with which towels should be changed will depend on circumstances, and should be at the discretion of the head teacher. In several schools, in order to obtain soap, the scholar has to apply to the teacher for it. The reason given for this is that soap left out in the basin is apt to be wasted or to mysteriously disappear. In a great many other schools, however, this plan was not found necessary.

Probably a parsimonious policy with regard to the soap is an unfortunate one, and must react prejudicially on the towels.

In one or two schools, at the inspection, neither soap nor towels were visible, and in a few, while towels were supplied, no soap was provided.

*Ventilation.*—In one or two rooms of each school a sample of the contained air was examined to determine its carbonic acid content. The results of these examinations show that the degree of contamination of the atmosphere of many school rooms is not beyond criticism. Every teacher during school hours has charge of their own room in this respect, and therefore it is to individual teachers that one must look for such improvement as can be obtained under existing conditions. The medical inspector got the impression that in many schools adequate advantage was not taken of the intervals in school work to have the rooms flushed with fresh air by having windows and doors wide open. Recent investigations have shown that the most effective systems of ventilation for schools include fairly lengthy intervals with windows and doors left wide open.

The fact that in many schools there is no retiring room for teachers would account for a certain amount of inattention to this detail. Many teachers remain in school all day, and it can hardly be expected, especially in cold weather, when the need for flushing the rooms with fresh air is greatest, that they will partake of their lunch in a through-going draught. In numerous schools also many children are unable to get home for the mid-day meal, and in cold and wet weather may be

allowed the use of a class room. When this is so the room should be cleared in time to permit of its being thoroughly flushed with fresh air before routine work begins again.

It should be the duty of the janitor or caretaker in every instance to see that all the rooms in a school are thoroughly flushed with fresh air each morning before school begins. In cold weather the time of doing this could be arranged so that the atmosphere would not be too cold when the children entered.

The usual means of ventilation met with were open windows (hopper windows and French windows occasionally seen), chimneys, Tobin's tubes and Sheringham's valves, or modifications of these, and air shafts in the roof. The latter are meant to act as outlets, but frequently act as inlets, causing down draughts. They also lead to short-circuiting of the air entering by the windows, and do not appear to be a satisfactory means of ventilation.

*Heating.*—In a number of schools the attempt is still being made to heat the class rooms by means of open fires. It has been abundantly demonstrated time and again that the average class room cannot be heated sufficiently or equably by that means.

Where open fires were not in use the system employed was that of low-pressure hot water pipes, with, in some cases, radiators.

In a few cases the length of piping appeared to be insufficient.

In every case the fires should be started sufficiently early to have the rooms at a reasonable temperature (60°-65° F.) when the school assembles in the morning. This is not always done. A thermometer should be hung in every room in a suitable position, and a record of the temperature kept. Special attention ought to be paid to infant departments.

*Lighting.*—It is generally accepted that the main light in any class room should come from the scholar's left, and that supplementary light should come from behind or from the right, never from the front. In many rooms a rearrangement of the seats is all that is necessary to effect this.

In going round class rooms endeavouring to ascertain on what principle the seats had been arranged, the only constant factor discovered was the relative positions of the class, the teacher, and the door. This was common to schools heated by hot-water pipes and schools heated by open fires, so that the position of the fireplace could not be held to be a controlling factor in the situation.

The teacher is practically invariably placed between his class and the door of the room. The door is situated either behind the teacher, when facing his class, or to one or other side of the teacher.



Why the disposition of the seating should be arranged to bring this about I have been unable to understand, but that it is so would seem to be beyond doubt, and if it must be so, could not the positions of the doors in new schools and in additions to existing schools be so arranged that the main light will come from the scholars' left?

The area of window space in many class rooms is deficient, especially in the older schools, resulting in insufficient lighting of the class rooms. Clean windows also are important.

The writer was able on one occasion to astonish a teacher in a mild way by informing her that the class room in which she worked, and which he had never seen, "was surely very dark." This teacher had just brought several of her pupils to the room where the inspection was being conducted, and the remark was prompted by the condition of their eyes.

Subsequent investigation showed that the only direct light the room obtained was by one window on the right of the class, and far back, so that two-thirds of the room got no direct light, being only very imperfectly lit by borrowed light. Artificial light is mostly obtained by means of gas jets or oil lamps.

*Cloak Rooms.*—The arrangements in existence for the accommodation of articles of clothing varies from the primitive method of having pegs in the school room, to the specially constructed cloak room. The essentials of a good cloak room are—That it be well ventilated; that pegs be sufficient in number, numbered and apportioned so that each child has its own peg; that pegs be arranged sufficiently far apart to prevent adjacent articles hanging on them from coming into contact; that provision be made for drying wet clothes. The number of pegs was generally found to be sufficient. In the majority of cases they were too close together, and arranged in two rows one below the other and a few inches apart, the pegs of the one row alternating in position with the pegs of the other row. This arrangement obviously leads to considerable overlapping of coats, &c.

In no school was any arrangement in existence for drying wet clothing. This is a grave defect. Where it is proposed to introduce such an arrangement the distribution of the pegs should receive careful consideration, since it would be exceedingly difficult to dry superimposed masses of wet clothes.

*Offices.*—Water carriage is the method of disposal of excreta in a small majority of the schools.

The receptacles were either separate basins or troughs mostly flushed by automatic means.

Pail closets and privy middens constituted the kind of re-

ceptacle in use in the bulk of the remaining schools. Cause of complaint was frequently found in the case of the privy middens. In these faecal matter was frequently found deposited on the seats and on the floor in front of the seats.

The seats were almost invariably too high, and the number in some cases inadequate. These two facts probably account for the filthy condition of some of these places, though lack of supervision of the cleansing and a certain laxity of discipline are probably contributing causes. These places are altogether objectionable, and ought to be abolished, and if a water carriage system, preferably with pedestal, flush-down closets, cannot be introduced, a pail system, with frequent removal of refuse and adequate supervision, would be infinitely preferable.

*Use of Slates.*—In a majority of the schools slates are not used at all, jotters taking their place. Where slates are still used, with one or two exceptions, they are only used in the infant division, and then, generally, only in the lowest infant class, and for a short time at the beginning of school life. The methods permitted for cleaning the slates are in some cases as free from objection as may be; in others, however, the salivary secretion is still used as a moistening agent. The indications, happily, are that slates, except where old slates are retained for clay modelling purposes, will soon be non-existent in schools, and this will constitute a hygienic advance.

*School Furniture.*—The old-fashioned, long desks and seats, the latter in some cases without backs, still persist in some schools.

The dual desk is fairly common, but, while the seat is sometimes adjustable in height, the desks are not made adjustable. The seats are not adjusted to suit the height of the scholars. Desks should, of course, be made adjustable as well as seats, or desks of suitable sizes used.

## CLASS ROOM ENVIRONMENT.

A child is sent to school to be educated, but it has no desire to be educated. It has to learn many things it does not want to learn, and this is good for the child. This, whatever the age of the child, implies effort, mental effort; broadly, implies output of nervous energy.

First, there is the effort to concentrate the attention on the subject in hand, an effort of will: second, there is the more purely intellectual effort to understand and memorise the subject. Anything that interferes with concentration or renders it more difficult will also interfere with acquisition.

Before the attention can be effectively concentrated on any

subject it is necessary that all distractions to the attention be shut out. The distractions may be intrinsic or extrinsic.

Intrinsic distractions are the thoughts, ideas, impressions that must be constantly occupying the mind of a child concerning its home, companions, play, and so on. Extrinsic distractions are the occurrences happening within sight or hearing of the child. It is with the extrinsic distractions that this note is concerned, and chiefly with the distractions of sound; briefly, with the sounds (or would "noises" be a better term?) avoidable and unavoidable occurring in schools—the auricular atmosphere—as it were. What is this atmosphere?

In order that this may be appreciated it is necessary to indicate briefly the teaching arrangements found in schools, in so far as these arrangements have a bearing on the matter in hand.

They are mainly three in number

- (1) One teacher and one class have a compartment or room to themselves.
- (2) One teacher and two or more classes have a compartment or room to themselves.
- (3) Two teachers and two or more classes have a compartment or room to themselves.

What, in this statement, is meant to be understood as a "compartment" and what as a "room" had better be indicated at once. A room has all four of its sides formed of "walls," in the ordinarily accepted sense of the term. A wall, to a considerable extent, prevents sound penetrating from one room to another, and considerably diminishes the intensity of any sound carried.

A compartment has one, two, or even three of its sides formed of partitions of wood and glass. A partition of wood and glass does not to any appreciable extent prevent noise from penetrating to an adjoining compartment, and this is the fatal objection to such partitions. Further, the partitions themselves are a source of noise, being often loose and often knocked against by the children. The noise thus produced can be very great.

It will be obvious that where a teacher and one class have a room to themselves the extrinsic distractions will be at a minimum.

This is the ideal arrangement, and one that should be striven after.

In the second arrangement (necessary in small schools), and even if a room is available, the extrinsic distractions will obviously be greater, since work of two or three different kinds may be going on simultaneously.

The third arrangement, now fortunately rarely seen, is the worst, but not perhaps so much worse than the arrangement by compartments as might at first sight appear.

As has been stated, any sound produced on one side of a partition is heard in practically undiminished intensity on the other side.

Any class unfortunate enough to be situated between two other classes and separated from both by partitions is in a peculiarly unenviable position, as it gets the full benefit of all that is being done in the adjoining classes. This arrangement by compartments actually and inevitably leads to an increased production of sound, and a sort of vicious circle is created; for, in order to be heard by the class, and in order to hold the attention of the class, a teacher has to dominate the sounds produced in the immediate vicinity.

The only available means of doing this is to make louder sounds; in other words, the teacher teaches in a very loud voice. It is no exaggeration to say that many teachers habitually teach mostly by shouting. This habit, which, judging from its frequency, is easy of acquisition, has no doubt in many cases been acquired as the result of the actual necessities of the case, and once acquired must be exceedingly difficult to get rid of when the circumstances no longer demand it. It will now be obvious how a vicious circle is likely to be created.

The tendency also is for the sounds produced by the children themselves during class work to be louder than would otherwise be necessary. These sounds are many and varied, and need not be detailed.

If there is a central hall the class rooms may be shut off from it by walls or by partitions; in any case, since the doors of the class rooms open into the hall, sounds originating there will penetrate to and disturb the classes at work.

The central hall is used, among other things, for musical drill, physical exercises, and singing classes. All involve the production of sound and of respiratory impurities of which the surrounding classes will get the benefit. The central hall, as at present constructed, already stands condemned in the minds of sanitarians on account of the impossibility of through ventilation of the class rooms abutting on it, and on account of the difficulties of ventilation of the hall itself. The uses made of it are, as has been pointed out, such as tend to exaggerate these defects, and also cause the production of sound, which, in view of its close proximity to the class rooms, is very undesirable.

The physical and nervous strain imposed by teaching under such conditions must be enormous. It has been stated that every teacher must expect a periodical breakdown in health.

This breakdown has generally been attributed largely to working in a vitiated atmosphere, and, while, no doubt, a vitiated atmosphere has its share in the causation, the nerve-trying conditions under which teaching has frequently to be carried on probably form a more important causal factor.

If the strain on the teacher is great, what must it be on the child, whose undeveloped will and undisciplined mind responds to every sight and sound? Many children also are made exceedingly nervous by being shouted at.

The child, under conditions such as have been described, is expected to acquire knowledge, and to that end is expected to have sufficient will power to shut out from its consciousness the babel of sounds that assail it.

It was on one occasion gravely suggested to the writer by an experienced teacher that a child could not think. If it had been suggested that under the conditions existing in many schools a child could not think the writer would have been inclined to agree—for thinking requires time, and effective thinking a reasonable degree of freedom from what have been termed distractions.

A stillness, such as Thomas Carlyle is reported to have required in his upper room, is not necessary, but some approach to comparative quiet should be obtainable. The inevitable result of such a state of things must be to degrade the art of teaching from the noble, if difficult, art of teaching children to think for themselves to a mere process, more or less mechanical, of packing facts into their minds; but such a training will help them little in the battle of life.

The reply to the above is obvious.

The child and the teacher, it is said, get accustomed to the noise; it ceases to trouble them; they never hear it.

What does this process of getting accustomed to it really mean?

Does it mean that, after a time, the work is as well done, is as easily done, is as quickly done and mastered, as if the noise had not to be contended with?

Getting accustomed to it in the opinion of the writer means that the work is as well done as it can be under adverse circumstances, which, in turn, means the acceptance of a lower standard of work. In any case, a child should not be under the necessity of getting accustomed to a condition of things obviously inimical alike to health, to successful mental effort, and to the easy acquisition of knowledge.

In numerous instances mothers have told me that their children had never been the same since coming to school. Before coming to school they were healthy youngsters, taking their food well, and sleeping soundly; now they were always



tired, would take very little food, and especially could hardly be persuaded to take any breakfast; in short, were like other beings.

Examination of such children revealed no physical cause for the change, and after careful inquiry regarding home habits one was driven to the conclusion that the result was simply due to nervous strain. That this strain was mainly due to avoidable causes has been sufficiently indicated as the opinion of the writer.

So much for the visible effects, but what of the invisible?

## REPORT BY DR. PRANGNELL.

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This report, to be submitted to the Stirlingshire Secondary Education Committee, deals with nine schools.

Eight of these schools, including St. Francis R.C. School, provide free education. The ninth is the Falkirk High School, which is a higher grade school, in which fees are charged.

The average number of children on the various school rolls was 7273.

For some years previous to the present compulsory inspection headmasters and their assistants throughout the burgh have taken a very active part in enforcing cleanliness of children attending school. In obvious cases of neglect repeated warning of parents was followed by prosecution. The present fairly satisfactory condition of scholars as regards cleanliness (general), vermin, and infectious skin diseases, as will be evident from this report, must be placed to the credit of school teachers.

Being medical officer of health for the burgh, as well as school medical inspector, the prevalence of infectious disease is known to me, and preventive measures can be adopted without delay. The sanitary condition of schools is maintained in a fair state of efficiency.

### METHODS OF INSPECTION.

On arrival at the school the children with record cards partly filled are presented to the medical inspector.

With the assistance of a teacher or senior scholar the children are examined and particulars noted on the record card. A list of defective children is left with the teacher on the last day of inspection after talking over and advising as to each child. In this way I am of opinion that a greater interest is taken in these children by the teacher who has the child so much under observation and has opportunities of talking with and advising parents.

At the expiry of a fortnight or so I re-visit the school. The list and children are presented, meanwhile return post-cards from the various medical attendants have been received by me. After going over the list with the children before me I am

able to select those cases which have not received any attention. A list of the names and addresses of children still requiring attention is forwarded to the school nurse, who visits the homes and reports progress.

I find that to measure, weigh, and examine a child the average time required is from eight to ten minutes.

About 100 children per week during the morning sessions are examined.

For examination purposes children are divided into four classes—five, seven, ten, and thirteen years at the date of examinations.

All the children at these ages have been examined during the past year to the number of 1512 boys and 1430 girls.

There were also 590 special cases selected by the teachers on account of some defect or want of progress. These are called non-routine cases; they are of all ages and both sexes.

In every school visited the teachers have given me great assistance and taken an interest in the work. Generally they have expressed themselves as satisfied that an improvement in the condition of the children has taken place.

*Facts Disclosed by Medical Inspection.*—Taking the routine and non-routine cases together there were 3532 children examined. Of this total, 889 were considered defective from dental caries, want of cleanliness, or requiring medical attention. All these received notices with return post-cards to medical men, or other suitable cards of instruction to have the condition noted attended to.

Of 535 return post-cards sent to parents to hand to their medical attendant, 300 were received by me intimating that the child had been seen.

216 cases were referred to the school nurse; 149 of these received some attention or promised to go to their family doctor; 19 have seen their family doctor, but nothing has been done; 23 are too poor to provide treatment. In five cases parents could not be persuaded to take any action. There is generally a positive indifference to dental caries. In only a very few cases has a dentist been seen.

*Parents Present.*—Few parents took advantage of the invitations which were sent to them to be present at the examination of their children. A few sent special messages to the medical inspector through the teacher. The number of parents present was 142, or 4 per cent. of those invited. In two cases the parent requested that the examination should be done by the medical attendant. The particulars thus received were transferred to record cards, according to the code of abbreviations.

ROUTINE EXAMINATIONS.		NON-ROUTINE.		TOTAL PERCENTAGE.
Boys.	Girls.			
Nutrition.	45	8		2.6
(Clothing,	63			2.6
Footgear,	68	—		2.6
Head and Body,	123	5		8
(Nits,	6	29		14.6
and Repairs,	2	8		14.6
(Cleanliness	85	—		5.8
Teeth,	88	—		4.9
Dental Caries over 4.	362	1		26
Tonsils Enlarged,	538	67		32
Adenoids,	61	55		4.4
Glands,	184	25		9.8
External Eye Disease.	54	111		6.4
Vision,	(Slight Defect, $\frac{6}{10}$ to $\frac{5}{12}$ 253	138		20.7
Ears,	(Defective, $\frac{16}{10}$ to $\frac{5}{10}$ 35	195		6.5
	(Very Defective, $\frac{60}{10}$ + 4	74		2.4
	O = 34, Wax = 51	O = 18, Wax = 23		O = 1.9, Wax = 3.2
Hearing,	25	Polypus, &c., 3		
Speech,	14	17		1.6
Mental Backward,	85	40		1.8
Vaccination,	54	21		5.3
(Bad,	74	—		6.3
(Nothing,	2	—		2
(Functional,	9	1		5
(Organic,	26	16		5
Respiratory,	2	13		1.1
Nervous,	15	10 (2 Phthisis)		
Tuberculosis,	34	21		2.2
Rickets and other De-	19	13		1.5
formities,	23	16		1.5
Infectious and Conta-				
gious Diseases,				
Others,				

*Attendance.*—On the estimate of the teacher, children were divided into three classes of good, average, and bad attenders, according as they had over 90 per cent., over 80 per cent., or under 80 per cent. of possible attendance marks. This percentage standard was not strictly adhered to, but was used as a guide to arrive at some uniformity of estimate throughout the schools.

Those having a good record were 84 per cent., and those having a bad record were 4 per cent. of the total.

*Personal History.*—According to the information received from parents at the routine examinations of children—

75	per cent.	suffered from	Measles	at some previous time.
49	"	"	Whooping-cough	" "
18	"	"	Chicken-pox	" "
12	"	"	Scarlet Fever	" "
2	"	"	Diphtheria	" "
22	"	"	Mumps	" "
2	"	"	Smallpox	" "
13	"	"	Rheumatism	" "
8	"	"	Fits	" "
13	"	"	Other illnesses	" "

The information regarding consumption in the family is not readily given. In some cases known to the teacher and also to myself a wrong answer was given. In only fifteen cases were answers given in the affirmative, which is less than 1 per cent.

*Work before and after School.*—94 boys and 38 girls were employed as messengers, and in some cases assisted at home.

Under thirteen years there were 14 children returned under this head.

*Nutrition.*—Estimation of the condition of the child as regards nutrition was made by me from examination of the child generally. A child might be pounds and inches under a given standard, yet as regards sufficiency of food, efficient digestion and assimilation as evidenced by the condition of the skin, hair, mucous membranes and general physique, that child might be well nourished.

There is ample evidence, however, that some children do not receive suitable food.

There were 45 boys, 40 girls, and eight of the non-routines who were badly nourished, equal to 2.6 per cent. of the total.

*Height and Weight.*—A table of average heights and weights is submitted, and comparison is made with the anthropometric standard. The difference is indicated for each age period and



sex by a + or -. There has been a wonderful irregularity noticed when going over the various schools. This was more marked among boys at the age period, seven years. Girls were more uniform at all ages. There was a very considerable difference also among children of the same age period examined in October, 1910, and May, 1911. Having examined by the

### *Weights.*

SCHOOL.	5 Years.		7 Years.		10 Years.		13 Years.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
Bainsford, -	40.7	40.3	49.7	48.1	63.2	59	75.4	79.6
Camelon, -	39.3	38.3	47.7	48.3	62.3	62.5	77.3	79.9
Carmuir, -	38.9	38.8	48	47.3	65	59.7	75.2	78.9
Central, -	42.6	40.5	47.8	48.6	59.5	61.7	80	77.5
Comely Park, -	—	—	48.9	48	64.5	61.9	77.8	81.3
Falkirk, High, -	43.1	40.1	49.2	48.2	66.1	62.7	82.5	84.5
Northern, -	39.9	37.7	48.3	45.3	64.6	59.4	76.6	77.9
St. Francis, -	—	—	44.7	45.2	62.8	59.8	77.2	77.2
Victoria, -	39.9	38.7	47.5	46	61.1	58.3	79.4	79.4
Anthropometric Standard,	39.9	39.6	49.7	46.7	67.5	62	82.6	87

### *Heights.*

SCHOOL.	5 Years.		7 Years.		10 Years.		13 Years.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
Bainsford, -	41	40.6	45.8	45.5	52.5	50.3	56.1	56.7
Camelon, -	41	40.8	46.1	45.8	50.7	51.5	56.4	58.1
Carmuir, -	40.6	41.2	44.9	44.6	51	50	55.4	55.2
Central, -	41.7	42.5	45.2	46.9	50.4	52	56	55
Comely Park, -	—	—	45.4	45.3	50.5	51.3	56.1	55.1
Falkirk, High, -	43.2	42.4	45.9	46.4	52.5	51.8	57.3	57.7
Northern, -	41.5	40.3	45.9	45.3	51.7	49.8	56.1	56.5
St. Francis, -	—	—	43.5	44.2	50.8	49.8	55.2	55.6
Victoria, -	41.3	41	45.5	45.1	51.4	50.6	56.2	57.1
Anthropometric Standard,	41	40.8	46	44.5	51.8	51.1	56.9	57.8

month of April, 1911, all the available children in the various schools who were five, seven, ten, or thirteen years at the date of examination, I thought it best to examine children who were thirteen years after October, 1910. In each of the schools both boys and girls at this age period average 1 to 2 inches less in height and 1 to 4 lbs. less in weight compared with the

*Average Height and Weight compared with the Anthropometric Standard.*

		BOYS.						GIRLS.					
AVERAGES.		Height (Inches).			Weight (lbs.).			Height (Inches).			Weight (lbs.).		
		5	7	10	13	5	7	10	13	5	7	10	13
Falkirk,	-	41.5	45.4	51.2	56.1	40.6	48	63.2	77.9	41.2	45.4	50.8	56.3
Anthropometric,	-	41.0	46.0	51.8	56.9	39.9	49.7	67.5	82.6	40.8	44.5	51.1	57.8
Difference,	-	+ .5	-.6	-.6	-.8	+ .7	- 1.7	- 4.3	- 4.7	+ .4	+ .9	-.3	- 1.5

previous examination. This fact might be explained by the difference in the number of months the children were over thirteen years and the lighter clothing worn at this season, but it also emphasises the possible fallacies that may arise from comparisons of small numbers. It is a question therefore which it might be well to consider, whether at the time of examination children should be selected according to the year of birth or age at the date of examination. I am inclined to think that the former would be the more uniform for instituting comparisons.

*Clothing and Footgear.*—As regards sufficiency and cleanliness of clothing, and condition of footgear, the teachers supplied the information. It was evident that special efforts were made by parents to send children with better and cleaner garments on the day of inspection. By taking the teachers' opinion of the average condition a more correct estimate was obtained for these particulars throughout the year. 2·6 per cent of the children were badly clothed or shod, the clothing being insufficient or in disrepair; the boots were leaky or absent.

*Cleanliness—Nits and Vermin.*—As regards cleanliness of body or head, 8 per cent. were considered dirty, 14·6 per cent. had nits, 59 per cent. were verminous. Slight cases of nits were not taken note of. Boys were not much affected with nits; only six were recorded. Among girls 481 were noted. Vermin were more common among girls. The marked difference is, of course, due to the long hair, which does not receive sufficient attention in the case of girls. Among girls otherwise well cared for there was a large proportion harbouring nits in considerable numbers. Cards of instruction how to deal with this condition were sent out to 165 parents.

*Teeth.*—4·9 per cent. of the children examined at routine inspections had septic or otherwise unhealthy conditions of the mouth from very bad teeth. 26 per cent. had more than four decayed teeth. This estimate will be under the true average, as only a general observation and count was made. No special examination by mirror or probe was made. 189 cards were sent to parents informing them of the condition found, and advising that a qualified dentist should be consulted. Very little has been done to remedy this condition of the mouth, the question of expense being the great bogey. Parents are not easily convinced of the injurious effects of dental caries on the health of a child.

*Tonsils and Adenoids.*—A very large number of the children examined had enlarged tonsils, but where the enlargement was of moderate degree, and there was no evidence of obstructed

breathing, no notices were sent to parents. In all cases of very marked enlargement or where there was obstructed nasal breathing, a notice was sent to the parent with a return post-card for the medical attendant. Treatment for this condition was obtained in a large proportion of cases.

32 per cent. of the children examined had some enlargement of the tonsils, and 4.4 per cent. had adenoids.

*Glands.*—Enlargement of submaxillary and cervical glands was noted in 9.8 per cent. of children examined, and attributed to diseased conditions of the mouth or irritation from sores about the head. About 1 per cent. of enlarged glands was considered tubercular.

*Eyes.*—All children were examined for external eye diseases, including squint, but infants were not examined for vision. It was found that 111 children, or 6.4 per cent., required treatment for blepharitis, conjunctivitis, corneal ulcer, or squint. Notices were sent to these parents.

*Vision.*—Vision testing was done for each eye separately with Snellen test types at 20 feet distance, with a good light. Of the children examined over seven years of age 20.7 per cent. of eyes examined were slightly defective, or from  $\frac{6}{9}$  to  $\frac{6}{12}$ ; 6.5 per cent. were more defective, or from  $\frac{6}{15}$  to  $\frac{6}{36}$ ; 2.4 per cent. were very defective,  $\frac{6}{60}$  or worse.

In every case where vision was defective in both eyes or associated with squint or external eye disease a notice was sent to parents advising them to consult their medical attendant. A return post-card was enclosed for the medical man. A larger proportion of girls was defective in this respect. This has been the common experience of all medical inspectors, and has been attributed to the greater use of the eyes for near work, such as sewing, darning, knitting, often with defective lighting. A large proportion has received attention. In cases of slighter defect the teachers were advised regarding them for near work and position in class.

*Ears.*—The forced whisper test at a distance of 20 feet was employed for each ear, when 1.6 per cent. were found to have defective hearing. In many cases this was caused by adenoids. A large proportion had ears plugged by wax or discharging pus. 3.2 per cent. of all cases examined had one or both ears plugged with wax. 1.9 per cent. had otorrhœa. In most cases of wax, and in all cases of discharging ears, a notice was sent to the parents intimating the condition and its seriousness if the necessary treatment was not adopted.

*Speech.*—The chief defects of speech noted were stammering and lisping. The cases were all of a mild character.

*Mental Condition.*—The estimate of the teacher was taken in every case. 5·3 per cent. were noted as backward or mentally dull.

*Heart and Circulation.*—26 cases having defects were noted, equal to 7 per cent. 18 of this total, or 5 per cent., were cases of valvular heart disease. Notices were sent to parents, and a return post-card to the medical attendant enclosed. Teachers were advised as to the condition in regard to physical exercises.

*Respiratory Diseases.*—71 cases, or 2 per cent., had respiratory defects, chiefly bronchial catarrh and bronchitis. There were four cases of phthisis discovered, of which three were excluded for treatment. One was allowed to attend school, and the parent advised as to how the child should be treated.

*Rickets and other Deformities.*—The deformities noted were knock knee, bow legs, pigeon chest, paralysis, talipes, and arrested development of parts. There were in all 78 cases, equal to 2·2 per cent. Treatment was recommended in some of these cases.

*Infectious and Contagious Diseases.*—Under this heading were noted all skin diseases, including eight eczema, one ring-worm, 20 impetigo, three favus, one scabies. Other skin diseases to the number of ten. Besides these there were four cases of whooping-cough, one scarlet fever, one erysipelas, four influenza. Total, 53, or 1·5 per cent. Impetigo was more common among boys. The other diseases were more prevalent among girls. Any cases likely to spread infection were excluded, unless precautions could be taken to obviate this.

## SCHOOL HYGIENE.

Generally the sanitary condition of the burgh schools is good. The headmasters are thoroughly anxious to safeguard the best interests of the children, which is only possible where conditions permit of a high standard of school hygiene. The school buildings are substantial stone and lime structures in excellent state of repair, with ample playground accommodation. The distribution of the schools throughout the burgh is good. With one exception the schools are situated with free, open spaces on all sides. The great need for free space around a building is enormously intensified in the case of a school. There are hundreds of young, active, growing children crowded together during the most active period of their lives. It is during this period that the physical and mental efficiency of each unit is determined. This cannot be accomplished without great expenditure of energy. It is a well-known fact that great ex-



penditure of energy necessitates an ample supply of oxygen as well as food. Ventilation, therefore, is to my mind the first important provision in a school. Efficient heating and lighting are also necessary to ensure that degree of comfort, happiness, and well-being so essential to mental and bodily vigour. Next in importance are cleanliness of schools, cloak room accommodation, sanitary conveniences. The school period is one of education of mind and body. It is essential that the general environment of the child should be as perfect as possible, so that impressions now formed may tend to make character of a high standard. Probably at no other period of a life are impressions made which are more difficult to eradicate. The habitual presence there of open, clean windows giving plenty of fresh air and sunshine, clean floors, walls, furnishings, presses, clean, dry playgrounds, the careful use of sanitary conveniences, the frequent use of soap and towels, and, above all, a teacher whose personal influence is good and great, must influence the minds and shape the characters of these young lives.

A system of school medical inspection has been instituted in the County of Stirling. Accordingly it is most convenient when visiting schools to have some uniformity of inspection in sanitary details. Under cleanliness of schools several heads have been suggested by Dr. M'Vail, chief medical officer of schools.

1. *Method of Floor Sweeping—whether Dry or Wet, as by Wet Sawdust, Tea Leaves, &c.*

In all the schools of the burgh sawdust or tea leaves (damp) are used daily in the process of sweeping floors. In St. Francis school the moistening agent is plain water. In all the other schools a disinfectant is added to the water.

2. *Presence or Absence of Dust on Ledges, Window Frames, or other such Surfaces.*

The industrial conditions in Falkirk make it almost impossible to obviate the presence of dust on ledges at some time of the school day if an attempt at efficient ventilation is made by means of open windows. Taking a general survey of all the schools in the burgh dust is not obvious in the forenoon. On high ledges dust may be found frequently.

The practice is each morning to sweep and dust with moistened sawdust and damp cloths each school room, including floor, furniture, wainscot, and lower ledges. In one school not surrounded by its own ground soot smuts from neighbouring house chimneys have been noted on ledges near open windows.

### 3. *Frequency of Floor Washing.*

I am informed that it is the practice in all the schools of the burgh to wash and scrub floors four to six times a year. To overtake this the janitor in each school selects three or four rooms in rotation each week-end.

### 4. *Frequency of Washing other Woodwork.*

Twice a year in the High School, four times a year in St. Francis R.C. School, and once a year in each of the other schools all woodwork is washed.

At these times a special general cleaning is done throughout each school, walls, maps, presses included.

### 5. *Frequency of Cleaning Windows and Glass Partitions.*

In the Camelon and Carmuir schools all the windows are hosed once a quarter. The glass partitions are cleaned once a quarter.

In St. Francis R.C. School the windows and glass partitions are cleaned once a quarter.

In all the other schools, except the Central, the higher windows are cleaned once a year. The lower windows and glass partitions are cleaned six times a year.

In the Central School the windows are cleaned once a year.

### 6. *Any Spraying Apparatus in Use.*

A Mackenzie spray has been provided by the Board for use when required during the prevalence of any infectious disease. On special occasions the sanitary department has undertaken this work.

### 7. *Door Mats—their presence and efficiency.*

Metal scraper, wire and fibre mats have been used more or less throughout the schools. There is a decided opinion among teachers and janitors that the metal scrapers and wire mats are the most efficient. The fibre mats get so wet and dirty when placed at main entrances that they become a positive nuisance which it is impossible to avoid. I find, therefore, that fibre mats are being discarded.

### 8. *Cloak Room Pegs—if numbered, and nearness to one another.*

In the Bainsford and Central Schools there are no cloak rooms, the pegs being arranged along the passages and un-numbered.

In the other schools very good cloak rooms are provided, with an ample supply of wash-hand basins or long water troughs. In the arrangement of pegs they are all alike for space. In four of these cloak rooms the pegs are numbered; the others are without numbers. In all the schools throughout the burgh hanging clothes are in contact, so that it matters little whether the pegs are numbered or not.

### *9. Latrines and Ashpits—any observations.*

There are no ashpits within the burgh; covered ashbins are in use for daily removal. In three schools the latrines provided consist of separate compartments, with pedestal seats, having slips of wood inserted into the rim of the basin. Each basin is flushed independently by the user.

In two schools with a similar arrangement of compartments and seats the basins are flushed automatically.

In three schools the latrines are partly independent and partly automatic flush. The number of latrines per 100 children varies throughout the schools from three to six.

At my visits these premises have been found free from nuisance, clean, and well used.

The urinals in all the schools are of good construction, glazed brick and cement hose flushed after school hours.

The automatic flush is not so efficient as the independent. The children dislike them, and they are more difficult to keep in order. Apart from that, I consider the training of children in the proper use of such conveniences is a valuable education.

### *Air Test for CO<sub>2</sub>.*

In each of the schools the air test was applied if in a room after occupation for an hour a stuffy smell was perceptible. Where no stuffy smell was perceptible in any of the rooms a chance test was made. It was found that the air of both the Camelon schools was particularly fresh, with CO<sub>2</sub> well under the permissible limit. In the Comely Park, Central, and Bainsford Schools the CO<sub>2</sub> did not exceed the permissible limit. In St. Francis R.C., Victoria, and High Schools, rooms were found having CO<sub>2</sub> over the permissible limit. In the Northern School four rooms were tested, two of which were markedly over the permissible limit; the other two were well over the permissible limit. In this last-mentioned school I attribute the cause partly to bad lighting and the necessity to use gas. In all the schools having rooms with CO<sub>2</sub> over the limit I attribute the cause to want of opening window space and want of cross ventilation. This is most noticeable in what are termed inner rooms. These are rooms without a door,

entrance being got through a sliding glass partition from another room.

Improved ventilation in these inner rooms is necessary.

If I were asked to make suggestions for increasing the efficiency of the burgh schools without being extravagant, I would advocate a great increase of the opening window space where required, as in schools having hopper fan lights near the ceilings, the provision of cross ventilation where possible; the headmasters to insist on flushing rooms with fresh air during intervals; the provision of some form of heating to maintain a temperature of  $55^{\circ}$  F. with efficient ventilation. I find in some school rooms where open fires only are provided that a reasonably comfortable working temperature is difficult to maintain in winter. As a result windows are quite closed or insufficiently open.

To reduce dust in schools fibre mats might be done away with altogether, wire mats and iron scrapers being substituted.

The approaches to main entrances should be cemented. The children when marching in could be directed in wet weather with muddy roads to stamp their feet before using the scrapers and wire mats.

The time is coming, I believe, when, instead of palatial buildings, simpler, cheaper structures, after the hospital pavilion style, will be provided. What is known as the Staffordshire style of school building is after this plan.

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### County Summary of Non-Routine Cases—All Ages, Both Sexes.

DISTRICT	No. Examined	No. Reported as Defective	DEFORMITIES		NUTRITION	VISION		EYE		HEARING	EAR		NOSE AND THROAT		SPEECH		TEETH		CLEANLINESS		SKIN DISEASE		HEART		LUNGS		NERVOUS SYSTEM		MENTAL CONDITION		TUBERCULOSIS		INFECTIOUS DISEASES		OTHER DISEASES OR DEFECTS		Medical Treatment Notices Sent		Cards Sent		Parents Present																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
			Spiral Curvature	Pigeon Chest		Wry Neck	Knock Knee	Bow Legs	Club Foot		Cleft Palate	Others	Total Children	Medium	Bad	Total Children	Polypus	Otorrhea R	Otorrhea L	Otorrhea Both	Wax	Others	Total Children	Mouth Breathing	Enlarged Tonsils	Tonsillitis	Adenoids	Enlarged Glands	Chronic Nasal Catarrh	Others	Total Children	Stammering	Indistinct	Nasal	Lisp	Other Defects	Total Children	1-1	More than 4	Total Children		Head		Body		Total Children	Eczema	Scabies	Favus	Impetigo	Head	Ringworm	Body	Sores of Scalp	Alopecia	Others	Total Children	Irregular	Organic Murmur	Heart	Hemic Murmur	Congenital Murmur	Defective Circulation	Others	Total Children	Bronchial Catarrh	Bronchitis	Pleural Affection	Asthma	Other	Total Children	Chorea	Paralysis	Epilepsy	Others	Total Children	Dull or Backward (B)	Defective	Others	Total Children	Pulmonary	Osseous	Glandular	Alimentary	Skin	Other Ferns	Total Children	Measles	Chicken pox	Diphtheria	Mumps	Scarlet Fever	Whooping Cough	Others	Total Children	Anemia	Appendicitis	General Debility	Various	Total Children	Already under Medical Attention	Medical Treatment Notices Sent	Teeth (F)	Vermis	Cards Sent																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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COUNTY SUMMARY OF ROUTINE CASES.

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